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THE FIRST TWO YEARS

A STUDY OF TWENTY-FIVE BABIES

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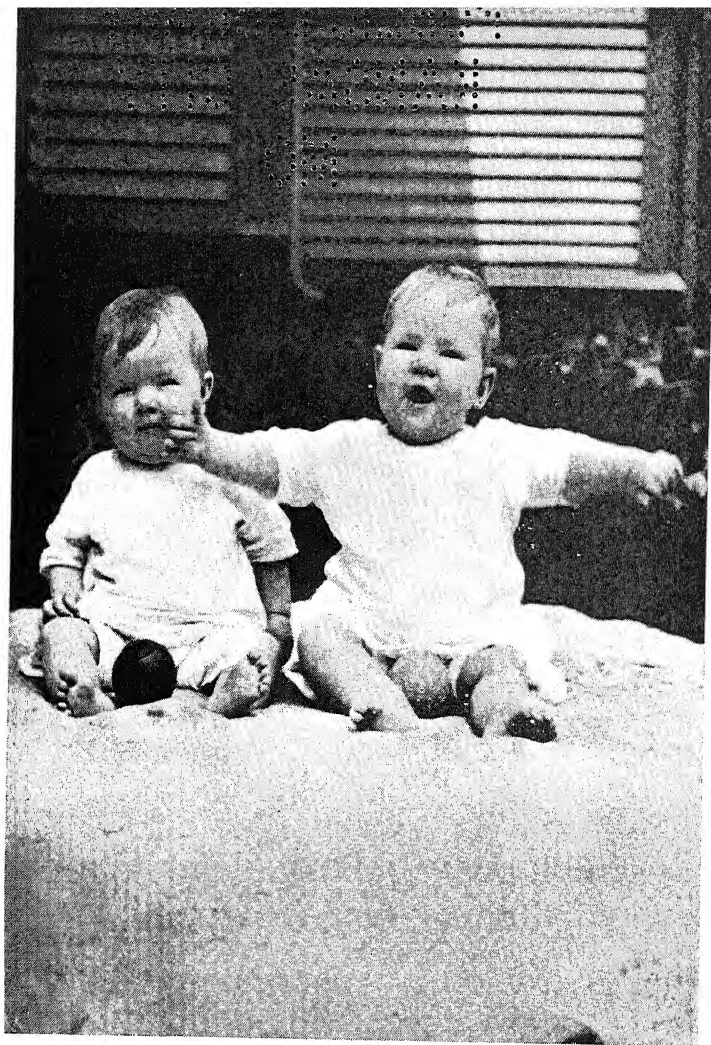
VOLUME III

PERSONALITY MANIFESTATIONS

UNIVERSITY OF MINNESOTA

THE INSTITUTE OF CHILD WELFARE

MONOGRAPH SERIES NO. VIII



PERSONALITY PLUS
(Serene Winnie and expansive Fred at 35 weeks)

THE FIRST TWO YEARS

A STUDY OF TWENTY-FIVE BABIES

By

MARY M. SHIRLEY

Randolph-Macon Woman's College
formerly
Institute of Child Welfare
University of Minnesota

VOLUME III

PERSONALITY MANIFESTATIONS



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EDITOR'S PREFACE

When the project which resulted in the publication of these three volumes was planned in 1926, little detailed information on the development of the infant was available except what was presented in the biographies of individual babies. Since that time, widespread interest in infant development has been aroused and an extensive literature is rapidly being created, which for precision of method and carefulness of investigation compares favorably with the investigations on the older child and adult. From this literature new conceptions of human development and of the relationship of early development to later progress are rapidly being formulated. In a sense the three volumes in this series mark the transition from the biographical method to the experimental method, combining as they do valuable features of both.

The mothers of twenty-five babies cooperated in keeping records of development on forms prepared in advance by the research workers. In addition, two research workers, Dr. Mary Shirley, a psychologist, and Dr. Edith Boyd, a pediatrician and anatomist, examined and tested the children periodically. The study was broad in scope, covering the whole life of the infant rather than a single aspect.

With this volume the Institute project on the mental development and behavior of the child during the first two years is completed. The first volume is concerned primarily with postural and locomotor development, the second with intellectual development, and this, the third and final volume, with personality development. The findings with reference to physical growth will be published separately.

As one reads the study as a whole one is impressed with the great complexity of behavior even at these early ages and with the orderliness with which development proceeds. But one is impressed also with the distinctive reactions of the infants, who from the outset, despite the common trends underlying development, preserve their individuality. In this volume the emergence of the personalities of the children from the background of a common developmental process is clearly presented. Moreover, as is shown by the analysis of the homes from which the infants come, some elements of behavior are quite as much products of the home situation as of the characteristics which the infant brings with him into life. As these monographs are read one feels not only that he understands the development of the children but also that he knows them as individuals and as members of their families.

A word of appreciation for Dr. Shirley's skill in presenting the results is appropriate. The children live before us—they are not abstractions—but real persons engaged in the very interesting and dynamic process of living.

We may close with a word of thanks to the children, now almost six years of age, whose early careers were studied. Our gratitude to the mothers expressed in the introduction to the first volume is reiterated. Only through the cooperation of mothers, children, and research workers alike, could such a substantial study be made. These children who have made such an auspicious beginning in their attack on life, have also made an important contribution to the understanding and welfare of all children.

JOHN E. ANDERSON
Director, Institute of Child Welfare
University of Minnesota

PREFACE

In this volume Dr. Shirley presents the studies of the personality of the twenty-four infants whose motor and intellectual development has been described in the two earlier volumes.

The personality descriptions, which are based on weekly observations of behavior under prescribed conditions and on notations of incidental happenings, have some of the advantages of both the longitudinal biographic studies of individual children and the cross-section tests or observations of a large number of infants. As in the biographic studies, each child was in his own habitat, thus was observed and tested in familiar surroundings of which the examiners became a part. As in the cross section, the children were tested by the same examiners, who used the same test situation each time. Under such a régime, the examiners had the opportunity of seeing both the behavior that was common to all the infants and that which was unique in each. Moreover, they were well acquainted with the family and the home situation.

Throughout the period of observation both Dr. Shirley and I were repeatedly impressed with the individual manner in which each child carried out the basic activities common to all. Each infant, though following a common pattern of development, was a distinct individual, as distinct as any adult in a similar group. In these personality descriptions Dr. Shirley has brought into clear relief the unique characteristics of each child, as well as the common characteristics of all.

On the whole her accounts coincide to a remarkable degree with my impressions of the children as I see them today, three years after the last recorded observations. Some characteristics have disappeared, new ones have appeared, but the basic manner of reacting is still present.

EDITH BOYD, M.D.
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Institute of Child Welfare

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CHAPTER I

PERSONALITY IN THE BABY

Does the newborn baby have a personality? If so, does he manifest it in such objective ways that it can be measured or studied? The title of this volume cannot but raise these questions in the reader's mind. He may remember occasions when, watching the antics of a friend's baby, he has been led to exclaim, "By Jove, a chip off the old block!" or, "What a little spitfire she is — so like her Aunt May!" Recollecting such observations the reader may grant a positive answer to the first question; but if he is a scientist he is likely to dismiss the second with a dubious shake of the head. Before attempting to marshal the data on personality obtained from a two-year study of more than twenty babies, it behooves the author to allay doubts on these two points. The question whether personality exists at the infant level can be answered only after a critical examination of current views as to the nature of personality. Whether the infant is a suitable subject in whom to study personality can be determined only after a brief consideration and evaluation of present methods of measuring personality.

NATURE OF PERSONALITY

Personality, one gleans from textbook definitions, is the sum and substance of the traits and reactions of the individual. It is the whole jewel, of which geniality, submissiveness, ambition, neatness, agility of body,

nimbleness of wit, and an almost interminable array of physical, intellectual, social, and emotional traits are each but facets. Watson has defined it as the sum total of the actual and potential assets and liabilities of an individual. He amplifies the definition by classifying as assets those qualities that make for adjustment and as liabilities those that prevent adequate adjustment.¹

Where personality is concerned all psychologists join hands with the Gestalters, regarding it as considerably more than a simple sum of abilities and reactions. It is an organized unit, a fabric woven or knit together out of its many component traits and habit systems in such a way that the finished cloth shows a definite pattern. Each individual has his characteristic personality pattern, of which no exact duplicate is to be found. This pattern, it is assumed, shows up in all his reactions; in a sense it determines how he shall react to any given set of conditions and how deep a mark those conditions will leave on him.

A third attribute of the personality pattern, modern writers on the subject imply, is solidity and lasting quality. At least these characterize adult personality. We may be absent from a friend for ten years; yet when we next meet we shall expect to find his habits of dress and gait, his attitude toward others, his wit, his tolerance, and his general outlook on life about the same as when we last knew him. We expect to be able to predict his opinions and reactions with almost as great accuracy as we did in the past, and in this expectation we are usually not disappointed. Indeed, if it were not to a certain degree constant there would be no such thing as personality. The concept would never have grown up around a shimmering will-o'-the-wisp.

¹ *Psychology from the Standpoint of a Behaviorist*, p. 395.

If there is a quality of permanence in personality, there is also, as popular opinion and the psychologists agree, an element of change. Every adolescent girl hopes to develop a "charming personality" and toward that end bends serious efforts. Psychological writers emphasize that personality is modified by experience. They do not, of course (to her dismay), furnish the young girl with rules and directions for adding charm to her personality; but for the most part they believe that by assiduous effort she can alter her present personality somewhat, and they offer suggestions for weaving new experiences into the warp and woof of the already existing pattern while it remains an integrated whole.

Thus it appears that personality has four major attributes: all-pervasiveness, pattern, permanency, and the possibility of development or change. If the behavior of the baby is stamped with these four characteristics, it may properly be said that he manifests personality.

REQUIREMENTS FOR THE STUDY OF PERSONALITY

The scientific psychologist who wishes to study personality is then confronted with the task of devising methods for measuring or estimating the dimensions of this four-phased entity. A comprehensive understanding of personality can be gained only by dealing with these four attributes simultaneously.

Needless to say, the psychologist's approach to the study of personality must be through the individual, for personality does not exist apart from individuals. An attempt to study development in personality through the medium of group trends would be wholly opposed to its nature. "Average personality" is a mean-

ingless phrase, for it would imply that persons varied only in the amount of personality they possessed rather than in the constellation of the manifold traits of which personality is composed. It would imply that personality is a unitary trait or characteristic, rather than a composite of all traits and characteristics.

This does not mean that generalizations about personality cannot be arrived at, but only that they cannot be deduced from statistical computations of group results. They must be built up from a thorough analysis of the personalities of a number of individuals. Trends that are manifested in the composition of the personality of every individual may then be formulated into laws of personality.

Since all-pervasiveness is a quality of personality, the ideal toward which the investigator must strive is observation of *all* the behavior of the individual, both implicit and explicit — an unattainable goal, to be sure, but nevertheless a definite one. The road, though still too long for any one investigator to travel, will be much shortened if he chooses a subject whose possible reactions are few, simple, and unambiguous.

In order that the pattern of personality may be discovered, all the component traits must be measured, and measured in relative terms. The psychologist must not, however, be content with measurement alone. If he is to see the complete picture he must combine the several traits in their true proportions and view the whole in proper perspective. Personality, the composite of all mental as well as of all physical traits, cannot, of course, be measured by any absolute scale or yardstick. This obstacle has been surmounted in the measurement of intelligence by rating the performance of the individual in terms of the performance of the group. This lead

is an important one for the student of personality. The need for perspective on the part of the investigator requires that as far as possible he should avoid basing his measurements on the subject's own introspective accounts of his behavior, or indeed on the accounts, observations, and opinions of his friends. Nor can he rely wholly upon objective records of behavior, for personality is revealed not only in the individual's reactions and his innermost thoughts and feelings but in his attitude toward himself and in the attitudes of his friends, his enemies, and his casual acquaintances toward him. Hence the second beacon light toward which the scientific student of personality turns his footsteps is the rating of the behavior of the individual in relative terms by the subject and all his acquaintances and by every possible objective method. Both because of its stability and because of its change and development, ratings and measurements of personality ought to be made continuously over a long period of the life span, preferably over a lifetime.

A second requirement for the study of change in personality is that it be measured apart from the influence of normal growth and development. Certain behavior traits increase with age — for example, length of stride, size of vocabulary, and perhaps ability to hold one's own in an argument. Other traits tend to disappear with the passing years, such as agility in moving about on all fours, pleasure in making mud pies, and the need of comfort and solace from the mother. Still other traits, it is certain, wax and wane during the life span: for instance, interest in a variety of play activities, which according to Lehman and Witty reaches a peak at 8 years, and sex interest, which does not develop until puberty and which declines in middle age.

Change in an individual that merely parallels the change of the group in a particular trait cannot be regarded as a true change in personality. It merely represents a developmental change. Only variations from the developmental course of the group — for instance, where the individual retains a trait after the group has sloughed it off, or where a trait waxes in him while it wanes in the group — represent true changes in personality.

In a sense the better novelists, the dramatists, and the poets of today come nearer to these far-away goals than the psychologist can hope to come. For the medium of fiction has advantages over the world of fact. In the first place, the author can assume omniscience as to the behavior of his characters. Since he creates all, he knows all. Then, too, he can limit the range and complexity of his puppets' reactions at will, and can eliminate contradictory behavior. In addition, the author is omniscient concerning his hero's attitude toward himself, since he controls the inner working of the puppet's brain. He is also omniscient as to the attitudes and feelings of his other characters toward the hero, and may limit the complexity of their relations to him according to his pleasure. With such powers in his hands, it is no wonder that the layman frequently accredits the novelist with far more "insight" into personality than the majority of psychologists.

The differences between personality as portrayed from the omniscient point of view and as interpreted from limited facts is to be seen in the difference between novels and biography. The biographer's facts are limited at best, and he is pretty well restricted to one point of view. He can view the person about whom he writes from but one perspective. Another biographer,

whose facts differ in a few minor details, weights them differently, takes a different point of view, and presents an entirely different picture of the same historic personality to the bewildered reading public. To approach the omniscience of the novelist and to avoid the limitations of the biographer in facts and point of view is the work cut out for the psychologist.

ADULTS AS SUBJECTS FOR THE STUDY OF PERSONALITY

Before discussing the suitability of the baby as a subject for the study of personality let us consider briefly the suitability of the adult. The adult is a complexly organized being with untold numbers of reaction systems. It is utterly impossible for a psychologist to get an accurate picture of all the systems possessed by any adult; he cannot even have an adequate notion of his own. Consequently most investigators of adult personality — or, to be more exact, of college sophomore personalities, since it is the long-suffering students who have been the subjects in most of these studies — have had to content themselves with studying one trait at a time. One investigator studies leadership, another extroversion, a third trustworthiness, a fourth stability of opinion, others radical tendencies, interests, feelings of inferiority, and so on. Each tries to relate his findings to such other factors of personality as he has knowledge of, but usually his data on other traits are meager, limited at best to intelligence test scores, scholarship records, and ratings of associates. Valuable as these studies are, they do not come to grips at all with the problem of the all-pervasiveness of personality.

They fail also to cope with the pattern-like character of personality. No matter how accurately the psy-

chologist may have measured one, two, or a half dozen of the many traits of the individual, he can do little more than hazard a guess as to the whole personality, for he does not know the relative importance of the many things he has left unmeasured, any one of which may greatly overshadow those measured.

He cannot even estimate the constancy or permanence of the traits he has measured, since his method is usually that of a cross-section survey in which he merely slices through the reaction systems of the individual and of the group at a given moment. The consistency of his results is usually checked by retests of some sort, but these often come within the short space of a few weeks or months. Such short-time consistency cannot be taken as an index to the constancy of the trait measured. Only when considerable new experience has intervened without changing the person essentially can the constancy of the traits measured be established.

Even less can the psychologist estimate the extent of change by such methods, for any measurement of change implies at least two measurements of the trait at more or less widely spaced intervals. A far better method is the study of the gradual evolution of change by constant observation over a long period.

BABIES AS SUBJECTS FOR THE STUDY OF PERSONALITY

With babies the task of measuring personality is theoretically simpler. As compared with the adult the infant possesses a small repertoire of habit systems, though their number and complexity are considerably greater than the inexperienced investigator imagines. Nevertheless the observation and recording of *all* experiences and *all* reactions of the infant, though a

practical impossibility at present and but a remote likelihood in the future, is still much nearer the realm of possibility than is the recording of all the experiences and reactions of the adult. The baby's range of acquaintances is small, moreover; hence the task of getting estimates from *all* who know him well is simpler. Since a large percentage of the young baby's reactions can be observed and recorded, the all-pervasiveness of personality will be seen in the similarity of his responses to different kinds of stimulation.

Furthermore, if the psychologist makes a faithful record of all reactions to all stimuli in a large group of babies, he then is able to work out group standards for each type of reaction and to apply these standards in the rating of individual performances. The standing of a given baby in the several traits will constitute his personality pattern.

Within the short space of a few months from birth to a year or two old the psychologist may study the constancy or inconstancy of the personality. This, to be sure, is a short time, but it is a period of very rapid physical growth and development. If he finds any traits that remain relatively constant during this period when growth and change, rather than constancy, are the rule, he can consider the finding far more significant than equal constancy during a period of slow development.

Finally, from the standpoint of experience the baby starts from scratch. By keeping a record of the baby's reactions plus his experience the psychologist will be able to estimate the amount of change in personality wrought by experience. All these are merely theoretical possibilities, but they suggest that the infant is as good as the adult, if not better, as a subject for the study of personality.

METHODS IN THE STUDY OF PERSONALITY

The methods used in the study of adult personality have been, for the most part, of the questionnaire or rating scale type. In the psychiatric and clinical fields the case-history method has been used almost exclusively. The first two have the advantage of being scorable in terms of the answers given by the group. Thus an individual may be rated in terms of his departure from the group norm. In the realm of personality, however, mere figures are hard to analyze and interpret. When many traits of personality are measured the figures are sometimes converted into profile graphs. Yet it is very difficult for the psychologist to get a clear enough impression of individual personality from the zig-zag lines down the page of a profile graph to predict how a person will react under a given set of conditions. Case histories are written in descriptive terms not unlike those employed by the novelist and biographer. It is easier for the reader to gain from them an impression of personality; but the truth of that impression will depend on the ability of the interviewer to obtain from his client the relevant facts and to weight these in his report as they are weighted in actuality.

Obviously no method that involves introspection and report on the part of the subject can be used in the study of personality in the infant. The investigator is confined to the method of observation for his data. This he may supplement if he wishes with the observations and opinions of the baby's family and friends. The baby himself will do no more for him than serve as a naïve and willing subject.

THE PRESENT STUDY

Let me at once hasten to say that this study of infant personality falls very far short of the ideal require-

ments set forth above. It is well, however, to consider the ways in which the infant study program set up at the University of Minnesota favored the accumulation of personality data and the ways in which those data may be assembled and presented to give a reasonably complete picture of each child. The longitudinal approach employed in the study recommends it as a medium for studying personality; second only to this method in importance is the fact that two investigators, pediatrician and psychologist, collaborated in the work, with the result that physical, anthropometric, and psychological measurements of the same babies are available. Contact was made with the mothers before the babies were born; the infants were first examined within twenty-four hours after birth and were observed daily during the first week and every other day during the second week of hospitalization. Thereafter they were observed in their homes every week during the first year, every two weeks during the second, and at more widely spaced intervals to the present time.²

Completeness of records. — In their acquaintance with the babies, then, the examiners came in on the ground floor. In fact the mother's and her doctor's records of her health and activities during pregnancy carried the available information well back into the fetal period. From birth to two years the records for this group of babies are certainly as comprehensive as any yet collected.

Home visits afforded the examiners an intimate acquaintance with the family and the home life, that prime environmental factor in the baby's development. The examiners' relationship with the mothers combined professional interest with genuine friendliness; into their

² At this date, April, 1932, the children are 4 1/2 years old. Twenty of the original twenty-six are still living in the city and are under observation.

ears the mothers poured many a family confidence along with tales of the babies' doings of the past week. The examiners also knew the other children in all the families intimately and had ample opportunity to observe the behavior of these children toward the baby and the mother's management of them. They were well acquainted with the maids and observed their treatment of the babies. They knew all the fathers and on several occasions chatted with them long enough to feel reasonably well acquainted. They met grandparents, aunts, uncles, cousins, friends, and neighbors who came for extended visits or for short calls, and when visitors were present they included them in the conversation and usually got an impression of their influence on the mother and the children. A brief family history record, filled out by the mother, supplemented their first-hand information about the family.

Rapport with the family.—The frequently repeated visits brought the examiners into contact with the family under a wide variety of circumstances. They frequently accepted invitations to share "pot luck" with the family, and these meals as well as many more formal dinners introduced them even more completely into the family circle. They called the day before Aunt Loretta's wedding, when the house was full of company, saw the mother all smiles and excitement and the little girls in their flower-girl costumes; they came the day after Grandmother's funeral, before the hush of solemnity and grief had worn off; they were present the day older sister Libby came down with pneumonia, and saw Father and Mother hanging over the child's bed in anxiety. Their visits were not interrupted when mothers left for extended trips or went to the hospital for operations; thus they saw the family when Father

and the maid were running the household. Wash day, cleaning day, marketing day, moving day found them on their rounds, working around the household routine and interfering with it as little as possible. They watched some families expand economically as fathers were promoted, others trim their budgets to meet decreased incomes, and still others face the grim fact of unemployment. In three homes they saw the mother through a subsequent pregnancy and a new infant oust their child from his rôle as "Mother's baby."

Such varied and complete knowledge of family life and conditions is the essential background for an understanding of personality in the baby. The examiners knew the child's environment as well as outsiders possibly could, and much more impersonally than members of the family could know it. The advantages of such intimate and sympathetic contacts are obvious; but there is perhaps a disadvantage in that the observer may be led to attach too great significance to an isolated bit of behavior on the baby's part on the basis of her knowledge of his environment and past performance. Such knowledge may, in other words, induce the observer to make somewhat more subjective judgments about the baby's personality than would an observer who saw the baby only once. But personality cannot be known from isolated fragments of behavior. It is all-pervasive; the ideal is knowledge of all the individual's reactions to all his environmental stimulation; and at the present time the human mind is the only machine that is at all capable of sizing up personality as a whole. Whatever the error of subjectivity is, however great or small, it is an error inherent in the measuring machine and it cannot be wholly eliminated.

Types of examinations. — The frequent visits had

another advantage from the standpoint of completeness of the data in that they gave opportunity for variety in the examination routine. Standardized physical examinations and anthropometric measurements were made at intervals of four weeks throughout the two years. In addition to recording the numbers and notes dictated by B, the pediatrician, S, the psychologist, observed the baby's behavior and took it down in consistent descriptive words and phrases. The psychological examinations given at all the other weeks were varied in content to suit the babies' growing interests and abilities. Complete descriptions of these examinations and analysis of the findings are given in Volumes I and II of this series. The records of the examiners were supplemented by records kept by the mothers at daily intervals from 2 to 32 weeks and weekly from 32 to 52 weeks. Finally, the numerous anecdotes that mothers, fathers, and even older brothers and sisters told about the babies were jotted down by S on the babies' records.

The total mass of psychological data thus falls into three classes: reactions to test situations, which were observed and recorded by the examiners; reactions recorded by the mothers on blanks specially prepared for their use; and incidental items, which included all reactions of the baby made while the examiners were present other than those in direct response to the test situations and all the anecdotal information given by the mother. The amount and variety of the data collected suggest that this study approaches about as closely the goal of observing *all* reactions as is profitable or possible at the present time. It remains to be seen how these data can be made to show the personality pattern for each child, and to give an estimate as to the degrees of constancy and of change.

COMPUTATIONS FOR THE STUDY OF PERSONALITY

In view of the all-pervasive nature of personality it is felt that not one shred of data should be discarded. All the reactions to tests, mothers' reports, and incidental happenings on record must be taken into account in constructing the personality pattern of each baby. The data are so disparate in type, however, and were collected in such different ways, that some classification is necessary.

Reactions to tests.—The first source of material, namely, reactions in psychological test situations, contains two types of items: those that apparently indicate development, such as skill in locomotion, manipulation, and vocalization; and those that seem to depend on the baby's whim, mood, or temperament, such as sociability, attentiveness, and irritability. Although traits like those in the latter group are more often stressed as the important elements in personality, yet the criterion of all-pervasiveness demands that the items indicative of development be considered of equal importance. The former were rated in terms of *developmental scores* and *point scores*; both types of score were given for locomotion, manipulation, and vocalization separately, and all items were combined in total scores.³ The items that apparently depended on the baby's mood or tem-

³ For a complete discussion of these two types of scores see Volume II, Chapters XVI and XVII. Briefly, *developmental scores* were obtained by arranging all the items in order of the age at which they appeared and assigning a score to each item so that the cumulative score for the median was always equal to the median age of first appearance of that item. In terms of developmental scores only the *first* appearance of a developmental item was scored.

Point scores were given by assigning an appropriate weight to each reaction that improved with age, and totaling all the points made at each examination. The total possible points varied from one type of psychological examination to another.

perament were not scored at all, but their frequency was always recorded. This does not mean, however, that the frequency of the social, attentive, and other non-scorable reactions did not differ from age to age; it simply means that they did not increase consistently with age. All the traits showed a developmental trend of some kind; irritability, for example, decreased with age and chewing the fist waxed and waned. But individual differences seemed to outweigh the developmental factor in these traits. Curves showing the developmental trends of the group in all these items except irritability have been presented in Volume II.

Change in a personality trait, it has been stated before, can be considered a real change only when it runs counter to the developmental curve of the trait. In order to study individual changes the age curves were drawn up for each trait in each baby. A comparison of each set of individual curves with those of the group will show wherein changes in the personality of a given child paralleled those of the group and wherein they departed from them. If, for example, Baby Don's curve of babbling is high in the early months and decreases with age, whereas the group curve for babbling is low in the early months and increases with age, Don may be regarded as having really changed in this trait. All the curves for all the babies will be studied in this way for what information they may afford as to changes in personality.

Such treatment will not, however, yield information on constancy in traits. In order to get an approximate measure of constancy in personality as a whole we must evaluate all traits on the same basis. For this purpose the individual scores of each baby in each trait have

been converted into a percentage of the median score.⁴ Such scores not only enable one to discover whether the child retains his relative position from age to age in a given trait — babbling, let us say — but also to tell whether he remains more constant in that trait than he does in another — sociability, for example. In short, it is only by means of comparative measures such as these that we are able to draw up a personality profile for each child, at present our best method of depicting the personality pattern graphically.

Thus for each baby all data derived from the psychological tests have been treated in three ways for the personality study: first, by developmental curves to show changes; second, by percentage scores to show constancy; and third, by profile graphs to shown pattern.

Incidental items. — The incidental items require less complicated treatment. Since only a few incidental items occurred at each visit, all those recorded during the two years were thrown together. They were then classified into categories and the number of items in each category was found for each child. In order to make the number of items comparable from one category to another and from child to child the total number of items in each category for each baby was di-

⁴ The use of this type of score has also been discussed in Volume II, Chapter XVII. The reason for using a measure of central tendency rather than one of variability as a point of reference (i.e., for using percentage of the median rather than the more usual standard deviation scores) is that the averages increased or decreased with age, and that variability in traits showing a developmental trend was relatively greater at the time when the average was low than when the average was high. The reason for choosing medians and interquartile ranges rather than averages and sigmas is that it is unprofitable to compute standard deviations on 20 to 25 cases, the number available in this study.

vided by the number of visits to that baby. Thus the incidental items are scored on the basis of the average number to a visit.

Since there were no week-by-week computations for these incidental items, there are no figures to show a developmental trend. Most of the categories into which incidental items were classified duplicate the items of the tests, for which developmental curves were drawn. But incidental items classified under the same head show development with age when the record is made in descriptive terms. Harvey, for example, has 10 items classified as showing eye coordination: at 2 weeks the notation reads, "Looks at B's hand"; at 19 weeks, "Looks at B's red-spotted sleeve"; at 28 weeks, "Looks at S each time she turns a page"; at 46 weeks, "Follows flight of airplane in the sky"; at 47 weeks, "Points at the shadow of a block mirrored in the tray of his high chair." Although a comparison of Harvey's average number of eye-coordination items to a visit with those of other children may show how much more or less interested he is than they in visual perceptions, the nature of his interest in visual perceptions can be judged from the types of objects he looks at. Information on such points can be obtained only by reading and comparing the descriptive items recorded for each child.

Incidental items, then, will be discussed in two ways: first, as to their average frequency to a visit, and second, in descriptive terms.

Personality sketches. — After all these facts and figures have been flung in the reader's face he is almost certain to be more confused than enlightened about the personality of each baby. The reader cannot at a

glance translate Quentin's developmental curves, profile graphs, and percentage tables into the statement that "Shyness and reserve in the presence of strangers was a fundamental characteristic that exerted a profound influence on all Quentin's behavior; this shyness had its first expression in a querulous and timid note in his cry during the hospital period" — and so forth. Yet this statement is far more intelligible and meaningful than the curves and graphs to the average reader and even to the trained psychologist. Furthermore, the profile graphs and percentage tables may sometimes mislead. One might discover that a baby manifested irritability and shyness in equal degrees, that is, in each of these traits his score was 150 per cent of the median score for the group; the implication would be that these two factors were of equal importance in the child's personality. But from observation the experimenter might know that the essential characteristic in this baby's personality was shyness, which made him cry at the sight of an unfamiliar face and thus seem irritable. In an evaluation of this child's personality, then, shyness should be given more weight than irritability, which according to the figures is equally important. Only the human observer is capable of sorting out these factors and deciding from the assembled data which are the important and which the unimportant factors in the personality make-up of each child.

For these reasons personality sketches for each baby will be presented in the last part of this book. They will be based on the graphs and figures that go before, and hence will not be wholly figments of the author's imagination. These objective and quantitative data will, however, be supplemented with interpretations and

evaluations based on the author's long acquaintance with the babies. In her opinion the additional data are objective facts, but facts for which no quantitative measure is possible. Using what fragment of literary skill she has, she will present the personalities of these babies as the novelist does his characters, in a descriptive and anecdotal style.

CHAPTER II

IRRITABILITY AT TESTS DURING THE FIRST YEAR

For one who is making a normative study of infant development it is sufficient to keep a record of each baby's reactions to the test situations in such terms as "passed" or "failed," these terms having been defined in advance by the experimenter. But for one who is making a longitudinal study of behavior traits and their development, it is important to know just what the baby did (i. e., grasped the toy and threw it on the floor; shook the box, then chewed it), and to have such a record supplemented by the non-scorable reactions of the baby at the test situation (i. e., fussed; was distracted by the doorbell's ringing; watched examiner). In the present study space was provided on all the record blanks for checking a variety of non-scorable reactions and for describing in a few words the more unusual ones.

The frequency and the developmental trends in all the non-scorable reactions except irritability are discussed in Volume II, Chapter XVI. Because of its recognized importance as an element in personality, irritability has been reserved for the present volume. The treatment of these data on irritability will serve as an example of how the frequency scores were computed and how the developmental curves for the group were drawn up on the other non-scorable reactions.

Since screaming and fussing were the most frequent

non-scorable reactions in the early weeks, and since these reactions were always marked enough to get the recorder's attention, they were perhaps more systematically recorded throughout the first year than any other non-scorable reactions. The data were subjected to a variety of treatments in order to discover, first, the influence of age upon irritability and the relationship between the irritability scores at different age levels; second, the relationship between the type of examination and irritability and between irritability scores at different types of examination at the same age levels; third, the influence of specific test situations upon irritability; and fourth, the irritability of individual children.

THE RECORDING AND SCORING OF IRRITABILITY

Record blanks for each type of examination, physical, anthropometric, and psychological, were printed in such a way that irritability could be recorded for any test situation by merely checking in an appropriate square.¹ On the anthropometric and early physical record blanks only two degrees of irritability were listed, screaming and fussing. On later blanks, however, the irritability column was divided into six headings: screaming, crying, fussing, no emotion, smiling, and laughing aloud. Because the psychological examinations had to be changed so frequently during the latter half of the first year the record forms were not printed and irritability was recorded by writing the word "screaming" or "crying" or "fussing" at the appropriate point.

The records were scored for irritability by counting

¹ A facsimile of one of these record blanks is given in Volume I, Appendix I, page 199.

the number of times screaming or fussing was checked on the original records. Screaming, crying, and fussing were first counted separately and then were added to obtain total irritability. Since the number of items and the time length of the examination differed from one type of examination to another, all the irritability scores were thrown into percentages. For example, the anthropometric examination comprised 108 items; if 54 of these items were checked for screaming, the percentage score was of course 50. The total number of items of the developmental test was only 56; hence 28 checks for screaming yielded a percentage score of 50. On the later psychological examinations, where a time limit of 1, 2, or 3 minutes was allowed for each test item, records were taken at 15-second intervals; consequently there was a possibility of recording screaming four times for each minute. On all these tests the total possible screaming ranged around 80 points. Although the percentage method of equating irritability scores on different examinations may leave something to be desired, yet it was the only method whereby these scores could be combined for comparison.

Although screaming indicated a much greater degree of irritability than fussing, nevertheless the two were combined for computing total irritability. The difficulties of weighting screaming higher than crying or fussing and of getting an "affability" score in terms of smiling and laughing to offset the "irritability" score made such treatment of the data impracticable.

The complete data consist of screaming, fussing, and total irritability scores from more than sixty records of each of twenty-three babies throughout the entire first year. Additional data as to the stimulus for irritability were obtained from an analysis of each ex-

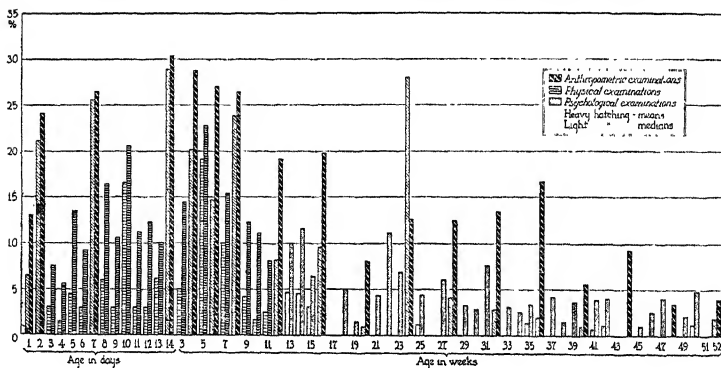
amination. The method of scoring the records by test items will be described below.

THE INFLUENCE OF AGE ON IRRITABILITY

After all the records were scored, both the mean and the median irritability of the infants were obtained for each age level from 1 day to 52 weeks. The findings for total irritability at all types of examinations are depicted in Figure 1. The solid bars in this diagram represent means and the hatched bars medians. It should be noted that in no case does the average irritability rise above 31 per cent and that after 8 weeks it is consistently below 20 per cent.

Decrease with age. — It is clear that irritability is much greater from birth to 6 months than from 6 months to a year, and in general that the younger the babies are the more irritable they are. The hospital

FIGURE 1
IRRITABILITY AT THE DIFFERENT TYPES OF EXAMINATION THROUGHOUT
THE FIRST YEAR
(Mean and Median Percentages of Total Possible Irritability Score)



period, 1 to 14 days, is the period of greatest irritability; from 3 to 12 weeks irritability continues high, from 12 to 36 weeks it shows little change, and from 36 weeks to 52 weeks it decreases.

The averages for the different ages, grouped in periods of 3 and 6 months' intervals, are given in Table I below. These averages bear out the impression given by the graph that irritability decreases with age.

TABLE I
AVERAGE IRRITABILITY AT DIFFERENT TYPES OF EXAMINATION
AT EACH AGE LEVEL

TYPE OF EXAMINATION	AGE IN WEEKS					
	0-2	3-12	13-24	3-24	28-52	0-52
Physical.....	11.3	14.3	8.5	11.4	6.1	9.8
Anthropometrical...	25.7*		15.4	22.6	9.0	17.1
Psychological.....	...	...	6.3	...	3.7	...

* From 1 to 12 weeks.

High irritability is characteristic of more babies during the early weeks than at later ages. In the early weeks the median score very closely approximates the mean, especially on the anthropometric examinations. After the age of 8 weeks, however, there is considerable discrepancy between the mean and median scores, which indicates that the mean was greatly affected by a few babies who were very irritable.

On the early measures through 8 weeks, during which period the average amount of irritability was about 25 per cent, almost half the babies fussed more than 25 per cent of the time and three-fourths of them fussed more than 5 per cent of the time. There were practically no babies, moreover, who did not fuss somewhat during the measuring. Consequently the average of 25 per cent fussing is fairly representative of the irrita-

bility of the entire group. At 12 and 16 weeks the average amount of fussing was about 20 per cent, a less representative average since about 65 per cent fussed not more than 5 per cent of the time and 25 per cent fussed more than 25 per cent of the time.

After 20 weeks, however, the average amount of fussing is somewhat misleading, for a very few babies fussed a great deal and an increasingly large number did not fuss at all. The number of babies who did not fuss rose fairly regularly from about 25 per cent at 20 weeks to 50 per cent at 32 weeks and to slightly more than 50 per cent at 44 weeks. Consequently the average figures represent only about half the children; the low medians at this period also indicate the unfairness of the average scores. At practically every measuring period at least one baby screamed more than 25 per cent of the time. These few very high records naturally had great influence on the average.

At the combined physical and psychological examinations, which were given through the first 11 weeks, about 25 per cent of the babies did not fuss at all, about 50 per cent fussed more than 5 per cent of the time, and about 25 per cent fussed more than 25 per cent of the time. The averages are not especially representative of the group; the discrepancy between medians and averages again confirms this point.

The averages on all the psychological examinations are rather low; in general they are less than 5 per cent. At 13, 14, and 15 weeks, between 25 per cent and 50 per cent of the babies did not fuss at all. During the rest of the year 50 per cent or more did not fuss at all. Only a few babies at each age level fussed more than 25 per cent, and after 36 weeks there were as a rule none who were irritable as much as 25 per cent of the time.

Only a little more than a fourth of the babies showed irritability greater than 5 per cent. Here again the average figures are misleading.

Probable errors for the 52 averages have not been calculated because it is obvious that with so few cases and such unrepresentative averages the probable errors would be higher than the averages. The consistency of these data can only be seen by viewing the year as a whole. Longitudinally the data are consistent and therefore warrant the drawing of several conclusions; but the data for each age level comprise too few cases to permit any generalizations.

To summarize, the average scores are considerably more representative for anthropometric measures, on which irritability is high, than for physical examinations, on which it is moderate, or for psychological examinations, on which it is low.

Intercorrelations at different age levels. — Intercorrelations of irritability scores at different age levels indicate that the baby does not consistently hold his rank from age to age. Correlations for the physical and anthropometric examinations are given below (see Table II). No correlations were run on the scores for psychological examinations, since so many babies had zero scores for these tests that the rank correlation method was thought to be inapplicable.

In the physical examinations considerable relationship exists between irritability during the hospital period and that in the home up to 6 months, but almost no relationship exists at the later ages. For the anthropometric examinations the relationship remains practically the same throughout the entire year period — somewhere near .50. Because the number of cases is small (21) the probable errors of all these coefficients

TABLE II
INTERCORRELATIONS OF IRRITABILITY SCORES AT DIFFERENT AGE LEVELS

PHYSICAL EXAMINATIONS		ANTHROPOMETRIC EXAMINATIONS	
Weeks Correlated	<i>r</i>	Weeks Correlated	<i>r</i>
0-2 and 3-12.....	.65 ± .09	1-12 and 16-24.....	.44 ± .12
0-2 and 3-24.....	.51 ± .11	1-12 and 28-52.....	.54 ± .11
0-2 and 28-52.....	.12 ± .13	16-24 and 28-52.....	.52 ± .11
3-12 and 28-52.....	.11 ± .13	1-24 and 28-52.....	.58 ± .10
3-24 and 28-52.....	.20 ± .13		

are high. The consistency of the coefficients for anthropometric examinations lends them, however, some significance. To a small degree the baby who is irritable at the anthropometric examinations during the first six months is likely to be irritable during the second six months. A scrutiny of the records of individual children will yield more substantial evidence on this point.

THE INFLUENCE OF THE TYPE OF EXAMINATION ON IRRITABILITY

Anthropometric examinations. — Figure 1 shows that the amount of irritability at the anthropometric examinations is considerably greater than that at all other types of examinations. The same fact is brought out in Table I, where the average irritability scores for the anthropometric examinations are shown to be almost twice as great, age for age, as those for the physical examination. Irritability at the physical examination is somewhat greater than at the psychological examination. The irritability scores for the physical examinations probably have little significance beyond the age of 12 weeks, for from 12 to 24 weeks the physical examinations were always accompanied by either psycho-

logical or anthropometric examinations, and from 24 weeks to one year by anthropometric. Hence the baby's emotional state during the taking of measurements was usually carried over to the physical examination.

The irritability scores for the anthropometric examinations look large in the diagram, but they are not so great as they appear. The average amount of fussing up to 6 months is slightly more than 20 per cent; since the anthropometric examination lasted about twenty minutes, the babies were, on the average, distressed about four minutes of the time. Indeed, most babies objected no more vociferously to the anthropometric examinations than they did to being bathed and changed.

The reason for the greater irritability at the anthropometric examinations is perhaps that they entailed somewhat more handling and restraint of the baby. The measuring was done with a high degree of deftness and skill, and involved no more restraint than was absolutely necessary. The measurements were caught "on the fly" with the baby waving and kicking and playing with a toy. But of course the main concern of the examiners was to take the measurements rather than to divert the baby. The physical examination required somewhat less restraint and allowed the examiners to pay somewhat more attention to the baby. At the psychological examinations the examiners really set out to entertain him; the tests required very little manipulation of the baby and allowed him absolute freedom in playing with the toys. He was restricted only by the time limits set for the test, and at that a new toy was offered the minute an old one was taken away.

Intercorrelations between irritability scores for differ-

THE FIRST TWO YEARS

TABLE III
INTERCORRELATIONS BETWEEN DIFFERENT EXAMINATIONS
AT THE SAME AGE LEVELS

ANTHROPOMETRIC EXAMINATIONS (WEEKS CORRELATED)		PHYSICAL EXAMINATIONS (WEEKS CORRELATED)		<i>r</i>
1-12	and	3-12.....		.86 ± .04
1-24	and	2-24.....		.71 ± .08
28-52	and	28-52.....		.65 ± .09
ANTHROPOMETRIC EXAMINATIONS (WEEKS CORRELATED)		PSYCHOLOGICAL EXAMINATIONS (WEEKS CORRELATED)		<i>r</i>
11-24	and	13-23.....		.47 ± .12
1-24	and	13-23.....		.41 ± .12
28-52	and	25-51.....		.63 ± .09
PHYSICAL EXAMINATIONS (WEEKS CORRELATED)		PSYCHOLOGICAL EXAMINATIONS (WEEKS CORRELATED)		<i>r</i>
13-24	and	13-24.....		.41 ± .12
3-24	and	13-23.....		.41 ± .12
28-52	and	25-51.....		.85 ± .04

ent types of examinations at the same age levels are given in Table III.

All these correlations are positive and reveal a certain tendency for the baby who is irritable at one type of examination to be irritable at another type. The correlations between irritability on physical and on anthropometric examinations are rather high; at the early age levels they are of considerable significance. But, as was stated above, the scores on the physical examinations from 6 months on probably are somewhat affected by the fact that the physical accompanied the anthropometric examinations.

The relationships between both physical and psychological and anthropometric and psychological ex-

aminations are around .40 in the period before 6 months; between 6 months and 1 year the relationships are rather high, .85 and .63, respectively. The writer would be very cautious, however, about saying that irritability seems to be a more established character or personality trait of the individual baby after 6 months than before. There is considerable evidence that it is a fairly well-established personality trait from birth on. Again the results will be clarified in the examination of the year's records for individual children.

All these correlation coefficients are considerably higher than are the intercorrelations at different age levels (see Table II). Irritability, then, is more a function of age than of the type of examination.

TEST SITUATIONS THAT PROVOKE IRRITABILITY

In order to determine whether some test situations provoked fussing more frequently than others, the amount of irritability was computed for certain test items on each type of examination. This method of scoring by items was somewhat complicated and will have to be explained in some detail. For the anthropometric examinations the different measurements were grouped in six general classes according to the part of the body measured and the type of manipulation involved. These groups were head measurements, trunk and arm circumferences, trunk bilateral diameters, leg and foot measurements, Babinski reflexes, and trunk anterior-posterior diameters. During the first five of these the baby usually lay on his back; during the last he lay on his side. The number of items at which screaming or fussing occurred was counted for each group of measures on each examination, and the score

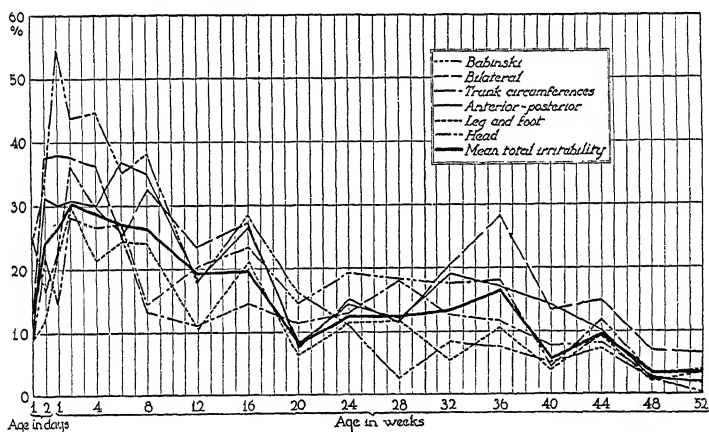
was converted to percentage by dividing by the number of items in each group.

In addition to these six general groups there were three specific measurements that seemed to cause fussing more often than others. These were the sacro-pubic and the sterno-pubic measurements, which were taken with calipers, and the crown-rump and crown-heel lengths, which were taken with the baby lying on a special measuring board. In scoring these individual items for irritability it was necessary to take into consideration the baby's irritability just before that measurement was taken. If the baby fussed only at these measurements then the situation itself must have provoked the irritability. If, however, the baby who screamed at these measurements had been screaming all along, then there could be no way of knowing whether the situation itself provoked the irritability. Consequently screaming, fussing, or placidity at the particular measure was recorded by *S*, *F*, or *O*; and a subscript *s* or *f* was added to indicate that the baby had fussed or screamed at one-fourth of the items in the group of measurements just preceding this single measurement. Groups of measurements were not always taken in the same order; the examiner sometimes skipped from one group to another so as to interfere as little as possible with the child's activities. In general, however, the different measurements within a group were made in a regular order.

Irritability at groups of measures. — The results of this treatment of the data are shown in Figure 2. In general the developmental curves representing each group of measures follow that for all the measures; this of course is to be expected. There is no constant tendency for one group of measures to arouse little irritability

and another group to arouse a great deal. It is interesting to note that whereas leg and foot measurements elicit slightly less irritability than most groups, Babinski reflexes call forth slightly more during the first five months. Irritability during the head measurements is slightly lower than that of other groups in the first 12

FIGURE 2
IRRITABILITY AT SEVERAL TYPES OF MEASUREMENT THROUGHOUT
THE FIRST YEAR
(Percentage of Total Possible Irritability Score)



weeks, slightly higher from 20 to 36 weeks, and about the same as the others during the rest of the year. In general, though, the differences between groups are too slight to be remarked upon. There is no tendency for a baby to be consistently irritable when a particular part of the body is measured.

Sacro-pubic, sterno-pubic, and length measurement. — As has been mentioned, the data on irritability at these specific measures were tabulated so as to take into account the irritability of the baby just preceding the

measurement. Further computations were made to determine what percentage of the babies at each age level had no change in irritability at each measure; to the number of babies who were quiet before and remained quiet during a particular measure was added the number who had been screaming before and who screamed during that measure, and this sum was converted into percentage of the whole. Similarly, the percentage of the babies who changed toward greater irri-

TABLE IV

PERCENTAGES OF BABIES SHOWING DIFFERENT AMOUNTS OF IRRITABILITY
AT CERTAIN MEASUREMENTS DURING THE FIRST YEAR

REACTION	SACRO-PUBIC MEASUREMENT	STERNO-PUBIC MEASUREMENT	LENGTH MEASUREMENT
No change in irritability...	77.7	74.3	59.7
Greater irritability.....	16.5	16.8	34.1
Less irritability.....	5.8	7.6	5.7

tability was found by adding the numbers of those who had been quiet before but who fussed or screamed at the specific measure and those whose fussing increased to screaming. The percentage of the babies who changed toward less irritability was obtained in like manner (see Table IV).

During the first 8 weeks the babies showed a tendency toward increased irritability at the sacro-pubic measure. Although about 55 per cent remained unchanged at this measure, almost 35 per cent changed from less to more irritability and only about 10 per cent changed from more to less irritability. After 12 weeks, however, the sensitiveness to this measure suddenly diminished, and during the rest of the year about 90 per cent of the babies remained unchanged at this measure. The totals for the whole year as given in Table

IV lie between the figures for the first 8 weeks cited above and those for the last 36 weeks of the year.

The sterno-pubic measure shows a similar tendency to be somewhat more provocative of irritability in the early months than later, but to a much smaller degree than the sacro-pubic measure. The figures for the entire year, however, closely approximate those for the sacro-pubic. The outstanding difference is that percentages for the sterno-pubic measure are much less variable throughout the year than those for the sacro-pubic measure.

The measurement of length on the board called forth more change toward irritability than any other single measure. Almost 50 per cent of the babies under 12 weeks changed to irritability at this measure; from 16 weeks on about 25 to 30 per cent changed. The tendency to change from irritability to contentment at this measurement was very slight.

Physical examination.—Only two groups of items on the physical examination were considered worth treating as the several anthropometric groups had been. These were the percussion group, which included heart rate, percussion of the chest, palpation for the liver and spleen, and estimation of muscle tone, turgor, and subcutaneous fat; and palpation for lymph glands and thyroid. Each of these groups contained 16 items for checking. Four specific items were used also: axillary and inguinal lymph nodes, mouth and throat examination, and blood pressure.

The data for both the percussion and the lymph node groups showed an average irritability of between 10 and 25 per cent during the first 18 weeks. From 20 weeks on the irritability on the physical examination became less and less. The curves for these two groups follow fairly

well the curve for total irritability on the physical examination.

During the first two weeks of daily physical examinations the babies showed a considerable tendency to fuss at the palpation for axillary and inguinal lymph nodes. From 15 to 30 per cent of the babies fussed at these measures each day, and several children fussed at them consistently from day to day, even though they did not fuss at other parts of the examination.

The percentage of children who fussed at the mouth examination was somewhat smaller. In general not more than 15 per cent of the babies were disturbed by having their mouths pried open and tongue blades thrust down their throats. In fact the babies seemed not to mind this unpleasant little incident nearly so much as do older children or adults.

Blood pressure, too, was taken with surprising ease. It elicited a fuss from almost every baby the first time, but thereafter not more than one or two babies fussed each time.

Psychological examinations. — The first psychological test was grouped into two parts to be scored for irritability: in one part the baby was lying down and in the other he was sitting. The average irritability at this test was slight, and there was very little difference between irritability lying down and sitting. In the early weeks of this test about 40 per cent of the babies showed some irritability; later the number dropped to around 30 per cent. No specific item seemed to cause irritability.

The later psychological tests from 6 months to 1 year were termed the choice tests. These were scored for irritability item by item, but it was found that there was no object in the tests that consistently caused irri-

tability in the babies. Not more than one or two babies were irritable over any single item in the tests. In many cases in which irritability was recorded a note was added that the mother left the room, that the baby bumped his head with a toy, or that he was slightly ill with a cold. Consequently it seems that the irritability was caused by something outside the test, not by the specific test object.

The motor tests, which were made at the end of each psychological examination, usually caused more irritability than the other items. From three to five babies fussed each week when they were placed on their stomachs for creeping. No baby consistently objected to this creeping test every time it was done, but one baby objected to it consistently between the ages of 3 and 6 months.

The walking tests elicited about the same amount of fussing as did the tests on the stomach. One baby always fussed at the walking tests from 15 to 49 weeks. One other was so disturbed by them that they were discontinued. Two others developed a fear of walking on the paper after the age of 1 year.

APPARENT CAUSES OF IRRITABILITY AT EXAMINATIONS

In general, irritability seems to be much more a function of the baby than of the situation. No test is a consistent irritant to all babies. If we search for factors that are common to the most irritating stimuli we discover that the situations fall roughly into four classifications. First were situations in which the babies were subjected to considerable manipulation or handling. The anthropometric examinations, which caused more irritation than the psychological, entailed much more

manipulation of the baby. Measurements on the board fell within this classification, and the bathing and dressing process, to which some of the babies objected, also belonged in this group. Second were situations in which certain sensitive zones were stimulated in a way that was perhaps slightly painful to the baby. Several of these sensitive zones were found on the very young babies; the axilla, the pubic and inguinal regions, and the sole of the foot seemed more sensitive than other parts of the body. As the babies grew older, however, the sensitiveness of these zones apparently decreased, although stimulation of them still called out a frown or a defense push from many of the babies. Third were occasions when the baby was somewhat ill or sleepy. Parents have always known that these conditions led to irritability in babies. Fourth were strange or new situations in which the baby was lonely, timid, or somewhat afraid. The departure of the mother occasionally started a cry, although this was rather rare and did not occur until rather late in the first year. Irritability from this source would have been greater, no doubt, if the examiners had been less familiar to the babies.

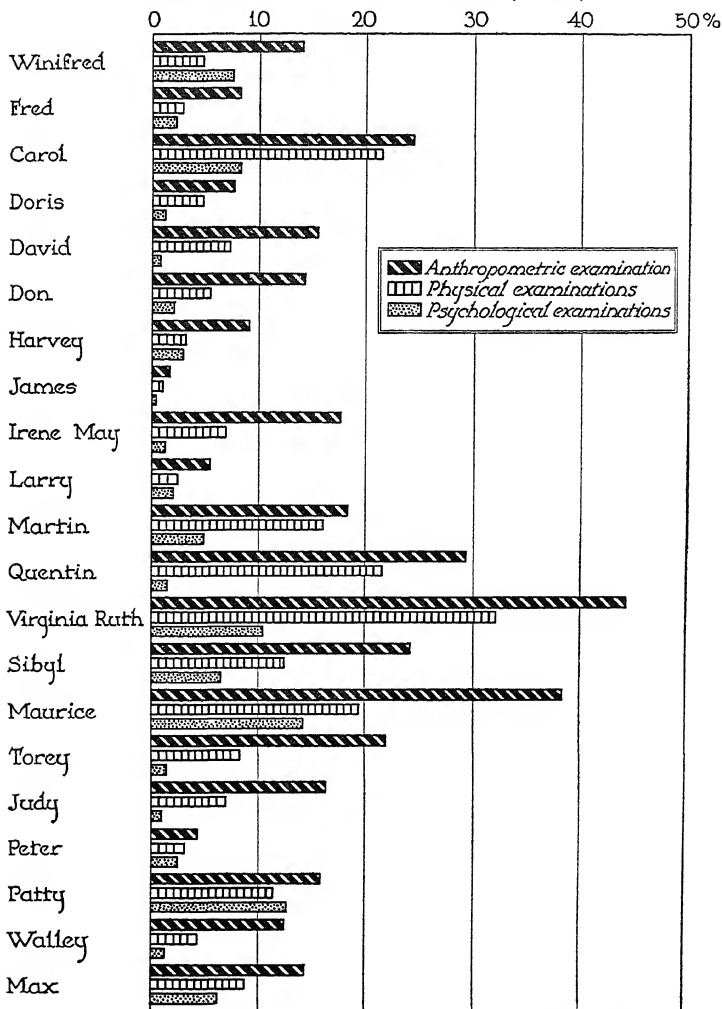
IRRITABILITY OF INDIVIDUAL CHILDREN

The correlations cited above suggest that some babies were placid and others irritable. The extent to which irritability characterized the behavior of each child is shown in Figure 3. Since this chart is drawn up for the whole year it does not show the developmental trends of the babies in the trait. The placidity and good nature of James Dalton and Larry showed up in the hospital period and remained characteristic throughout the entire year. Virginia Ruth and Maurice, on the other hand, were very irritable from the hospital period

FIGURE 3

IRRITABILITY OF INDIVIDUAL CHILDREN AT THE DIFFERENT TYPES OF EXAMINATION THROUGHOUT THE FIRST YEAR

(Percentage of Total Possible Irritability Score)



on. David and Quentin were very irritable at the early ages but reformed and became quite pleasant and happy at the examinations after 20 weeks.

The chart also shows that anthropometric measurements were the most irritating of the examinations, physical examinations next, and psychological observations the least annoying. It seems fair, then, to conclude that irritability is to a considerable degree a function of the individual child rather than of the situation in which he is placed. It seems likely, moreover, that the tendency toward either marked irritability or marked placidity is inborn. At least the tendency appeared at the earliest examination and lasted throughout the first year. It is to be regretted that the examiners were unable to get a record of the tone and quality of the cry from time to time. If their ears are to be trusted, these were quite constant for each baby throughout the year. To be sure, the baby's cry changed with age, but it changed perhaps more in pitch and loudness than in timbre. Some cries were best described as ear-piercing shrieks, others as plaintive wails, and still others as cries rather than screams. To discuss these qualities of the cry further might betray one into anthropomorphizing about the infants. But it is true that the three babies whose early cries sounded plaintive and as if they were afraid were the three who later reformed in the matter of irritability, whereas the two whose ear-splitting yells seemed expressive of rage remained the most irritable babies in the group.

CHAPTER III

PERSONALITY AS IT APPEARS AT PSYCHOLOGICAL EXAMINATIONS

The problem of dealing quantitatively with all the reactions of all the babies to all the test situations is largely a problem in classifying reactions in categories. All the data obtained in this study may be classified in six main divisions: development as a whole, vocalization, locomotion or gross motor coordination, manipulation or fine motor coordination, compliance, and non-scorable reactions. Subdivisions of these bring the total number of behavior categories to twenty.

QUANTITATIVE TREATMENT OF THE PERSONALITY DATA

The items included. — Development as a whole has two subdivisions: developmental scores, which are measures of development in terms of the age at which new skills were acquired; and point scores, which are measures of development in terms of proficiency in performing tasks at each examination. The high correlations found between the two types of scores (see Volume II, Chapter XVII), indicate that in general babies in whom new traits put in an appearance at an early age performed at a high level of proficiency thereafter. There are individual exceptions, however, and the baby whose point score is lower than his developmental score must be suspected of not living up to his potentialities. If a marked discrepancy occurs between a baby's de-

velopmental score, which is a crude measure of his potentiality, and his point score, which is a measure of his achievement, perhaps the explanation is to be found in the baby's reactions on non-scorable items. These scores for individual babies must be studied, then, not alone but in reference to each other and to the pattern composed by all the traits, non-scorable as well as scorable.

The division of vocalization has five categories. The first, a developmental score on vocalization, was given at the first appearance of each new item in the vocalization sequence. Total amount of vocalization, the second item, is a grand total of all the child's utterances, regardless of their quality; babbling, jabbering, and comprehensible speech are all thrown together. This item represents the extent to which the baby makes vocal noises, not his proficiency in the use of speech. Point scores on all vocalization, which constitute the third item of this group, are scores in which the quality of the sounds as instruments of speech are considered. These scores are more fully explained in Volume II, Chapter XIII. The fourth item consists of point scores on elicited vocalization only — that is, on speech that was called forth by the examiner's questioning the baby about the pictures in a picture book. The fifth item is point scores on spontaneous vocalization, or comments and remarks that the baby made of his own accord without being urged. Scores for spontaneous and elicited vocalization were added together to obtain the score on all vocalization.

The locomotion division contains only one item, namely, developmental scores on locomotion. That on manipulation or fine motor coordination contains two: developmental scores on manipulation and point scores

on manipulation. Here again the frequencies of non-scorable items for babies who show discrepancies between developmental and point scores must be examined for what information they may yield as to the causes of these discrepancies.

Compliance, the fifth division, contains point scores that the babies earned by their responses to simple commands given during the test.

The last division, non-scorable items, is a polyglot category containing all items that occurred with sufficient frequency to be recorded consistently but that did not show developmental trends in an upward direction. Nine items are included in this division. The first is the proportion of all the non-scorable items in the total number of items. This figure was obtained by adding the frequencies of all the non-scorable reactions and then converting this sum into a percentage of the total number of reactions made. This was done in the case of each examination of each baby. A high percentage of these non-scorable items necessarily means a low percentage of the scorable items. The 8 non-scorable were: random play, in which the baby patted, shook, and played with the test objects in ways that did not get him anywhere from the standpoint of adjustment to the situation; passive holding of the toys; escape from the test situation by creeping or walking away from the examiners and their toys or by playing with other toys or climbing, bouncing, and racketing about with no attention to the examiners' overtures; chewing or sucking of the object; irritability, which included all screaming, crying, and fussing during the examinations; attention to the examiners, which was a social response; attempts on the part of the baby to draw the examiners' attention to himself by shouts, calls, or clowning; and

finally, seeking help, in which the baby by grunts and gestures implored the examiner or the mother to blow a whistle, open a bottle, or fix or give him some toy.

Completeness of the data. — The critic may say that these six main divisions and their twenty categories cannot represent *all* the baby's reactions. Surely the babies exhibited types of behavior at test situations other than those included in this paltry list. A division that is conspicuously absent is that of emotional responses. Did these babies show no fears, no discouragement, no affection, no shyness, no gayety or happiness? The answer to such criticism is that the babies did display these traits, and that they were not overlooked in the record-taking. Except for irritability and smiling, however, these emotional reactions did not occur frequently enough during the examinations to be included among the non-scorable items. They were noted and subsequently classified as incidental reactions, and will be described and discussed in the next chapter. These twenty categories include all the reactions to the examinations for which frequencies and scores are available.

Since the nature of personality requires that all traits be studied with respect to their constancy, their change, and the pattern that they compose, these data were treated in three ways, each of which is designed to bring out the facts with regard to one or another of the characteristics of personality.

CHANGES IN PERSONALITY

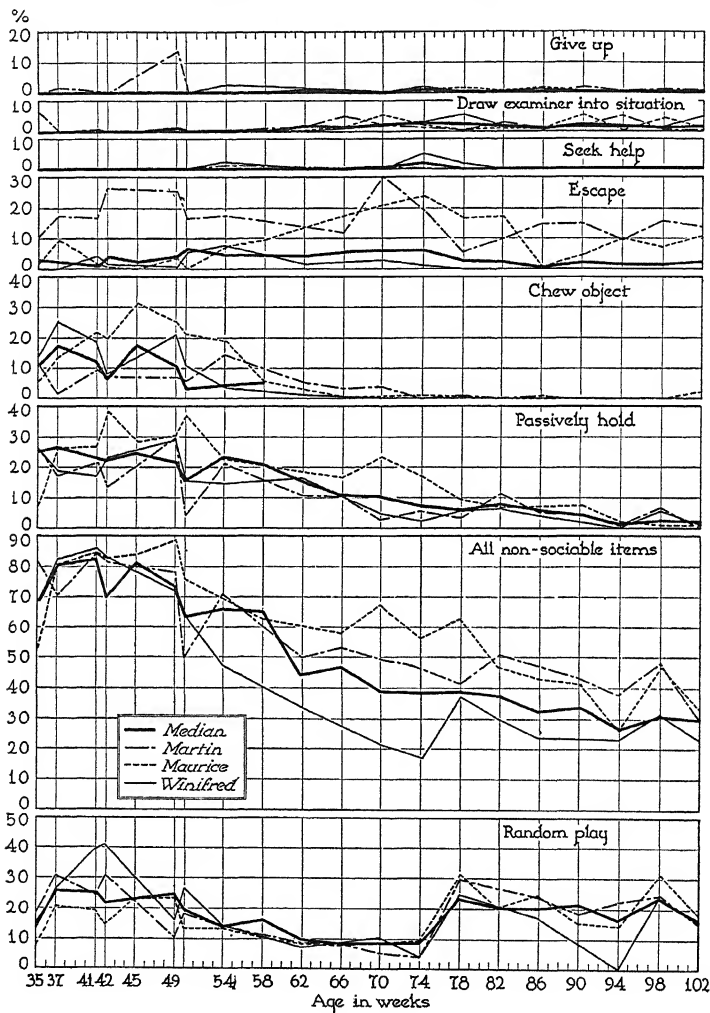
The data were first examined to show the influence of age and experience on change in personality. Change in personality, let me reiterate, must be studied in connection with the developmental change. A particular

baby's crying and fussing may decrease with age, but so does that of the group. In any traits that change with age the trend of the group must be taken as the standard with which individual performance is to be compared. This is equally true of psychological traits, for which no absolute measuring units have yet been devised, and of the traits of height and weight, for which there are accurate measuring scales.

Age curves. — The problem, then, is to discover to what extent the changes in individual babies paralleled the developmental change of the group in the several personality traits and to what extent they departed from it. For this purpose the age curves in each of the twenty categories were drawn up for each baby, and the individual curves were then compared with the curves for the group. Space does not permit the publication of all these individual charts. Curves representing developmental scores for a few babies are given in Figures 34 and 35, and some for point scores are shown in Figures 37, 38, and 39 of Volume II. Age curves for the non-scorable items of a few babies are presented in Figure 4.

The curve of each baby in each reaction category shows clearly a developmental trend like that for the group as a whole. Where the curves for the median pursue an upward course, as they do in developmental and point scores and in all the scorable reactions of vocalization, manipulation, and compliance, the corresponding curves for every baby mount upward. Where the median curves go downward, as in certain of the non-scorable items representing infantile reactions that are gradually eliminated as age advances, the curves for every baby likewise go downward. The percentage of non-scorable items, the reaction called "pas-

FIGURE 4
SEVERAL TYPES OF NON-SCORABLE REACTIONS OF THREE BABIES AT
DIFFERENT AGES
(Percentage of Total Reactions)



sive holding," and the reaction of chewing objects all show this declining trend. Finally, where the curve for the median rises and then falls, a trend shown in the non-scorable reactions called "escape," "draws the examiner into the situation," and "seeks help," or where it assumes the even more complicated form of rising, falling, and rising again, a trend shown in the random play reaction, the curves for each baby also show these elaborate forms.

This does not mean that the developmental curves for each baby follow closely those for the medians. In the case of some babies the age curves take on an exaggerated form. This is particularly true of the curves of Martin, Virginia Ruth, and Maurice in the escape reaction. These three babies were much more given to walking out on the examiners than were any others. Nevertheless they escaped less frequently toward the beginning and toward the end of the age interval in which this reaction was recorded than in the middle of the period — between 52 and 78 weeks. The age curve for this particular item is doubtless influenced by the onset of creeping and walking. Until walking begins the baby cannot make a quick get-away. In the early weeks of walking, trotting about from room to room is a joy in itself, and the active baby prefers it to sitting quietly on the floor looking at pictures and playing with toys. But the novelty of running about eventually wears off, and the baby's propensity for escaping then declines. Not only do Martin's, Virginia Ruth's, and Maurice's curves show the age trend of rise and fall in this trait in a more exaggerated form than the median curve, but their age curves are somewhat displaced along the horizontal axis, the displacement corresponding to the ages at which they began to walk. For the median, the

greatest amount of escaping occurred between the ages of 50 and 74 weeks, the interval within which the babies began to walk. The curve for Martin, the earliest baby to walk, began its rapid ascent at 35 weeks and its decline at 50 weeks. The high points on Virginia Ruth's escape curve occur between the ages of 50 and 70 weeks; in age of walking she, too, was somewhat advanced. The curve for Maurice, who walked at about the median age, was highest between the ages of 68 and 82 weeks.

Individual age curves for chewing objects, a reaction that declines in the latter part of the first year and disappears early in the second, also show departures from the median curve in the age at which the reaction disappears, even though all the curves have the same general form. The median age of disappearance is 62 weeks; but as early as 50 weeks Judy, Walley, and Don emerged from the everything-into-the-mouth stage, whereas Martin and Peter were still exploring toys with their lips and tongues as late as 74 weeks. These few examples illustrate the fact that although the babies showed decided differences in the age at which they manifested specific traits and in the degree in which they manifested them, they showed no essential departures from the group trend in the order or pattern of development.

The significance of change. — The conformity of all the individual age curves to those for the median further emphasizes the points made repeatedly in the first two volumes of this work that development during babyhood follows an orderly course or sequence and that the sequence is not altered by the speed at which development proceeds. That the course of development is just as orderly for reactions that decline and disappear with age and for those that are transitory as it

is for those that become steadily more marked with age is a highly significant fact. It means that *out-growing* is just as truly developmental as is *growing up*. It means that the machinery of development during babyhood is so powerful that it influences every trait, not merely the handful of motor and intellectual activities that show improvement with age.

The fact that individual age curves all show the developmental trend also leads to an important conclusion about personality. It means that in the period of babyhood, development, rather than individual differences, is the big driving force. The unfolding process of growth outweighs the factor of individual propensities in determining how the baby shall behave. To put the matter more concretely, it means that two babies 5 months old will be more nearly alike in their reactions than a 10-months-old baby's reactions will be like his own at 5 months. In babyhood individual differences are secondary to developmental forces; during the epoch of rapid development individual differences are never strong enough to alter the developmental course.

CONSTANCY IN PERSONALITY

Such statements as these must not be interpreted to mean that individual differences are not apparent in babyhood, or that they are unimportant. Nor do they mean that the babies in this group did not change with respect to each other — that a given baby was the most talkative, the least irritable, and median in the group in compliance at every examination throughout the entire two years.

Percentage scores. — In order to determine the extent to which a baby was consistently irritable or vocal,

or the extent to which he changed his position in the group in these traits, the influence of the developmental curve had to be ruled out. This was done by taking the central tendency of the group as a standard for comparison. Every weekly score for each baby in every one of the twenty reaction categories was converted into a percentage of the respective medians.

The advantages of percentage of the central tendency over the more conventional percentile scores are two: first, that percentile scores throw the distribution into a rectangular form, spacing individuals at equal distances from each other, whereas percentage scores leave the relative magnitudes of the scores unchanged; and second, that percentile scores restrict the range to 100 units, with the median at 50, whereas percentage scores may (and did) range from zero to infinity, with the median at 100. Likewise, for two reasons, percentage scores based on the central tendency better meet the needs of this study than do standard deviation scores or other scores based on measures of variability. First, whereas the median scores change with age, in accordance with the developmental trend, the variability does not show the same type of trend. In many instances the variability is highest when the median scores are lowest. This is particularly true of the non-scorable items that decrease with age. At the time when the median of chewing objects or of escaping is approaching zero, there is still a wide range of response, with interquartile ranges far larger than the medians. Thus to convert individual scores into percentages of the variability would be to divide them by measures considerably less representative of the group trend than are the medians. To have computed standard deviations on so small a sampling would, moreover, have in-

troduced as many errors into the data as it ironed out, and perhaps even more.

Percentages of the central tendency or median, therefore, are the best scores for the purpose of studying the constancy or change in personality from these data. They satisfy the requirement stated in Chapter I that measurements of all traits be reduced to comparable units. Percentages based on the performance of the group are comparable not only from baby to baby but also from trait to trait.

Percentage scores in each category were obtained for twenty or more examinations of each baby. In order to study the permanency or change in percentage scores from age to age the entire two years was divided into five age periods: the neonatal, represented by the scores obtained at 2 weeks; infancy, which included the ages from 3 to 23 weeks; babyhood, from 26 to 50 weeks; middle babyhood, from 54 to 74 weeks; and late babyhood, from 78 to 102 weeks. Medians of the percentage scores were then worked out for each age interval. In order to obtain a more inclusive score for each baby the median for the age range from 26 to 102 weeks was used; interquartile ranges were also obtained for this longer age interval.

Individual differences. — The magnitude and importance of individual differences in these twenty behavior categories stand out clearly in the percentage scores. They are not quite so great in the scorable categories as they are in the non-scorable. In the scorable traits some babies had ratings as low as 20 per cent of the median, whereas others had scores as high as 250 per cent. In many of the non-scorable categories the range in percentage scores was from zero to 5,000 and even to infinity. Hence although individual differ-

ences in babyhood are subordinate to the developmental trend, they are nevertheless very great and far too important to be overlooked.

Constancy of traits. — The consistency of percentage scores from one age period to another was considerably greater in some behavior categories than in others. The three items in which the babies tended most closely to hold their respective places in the group from infancy to late babyhood were developmental scores for all items, developmental scores on locomotion, and developmental scores on manipulation.

In these categories the median percentage scores for all age periods except the neonatal varied for the most part within a 25 per cent range for each baby. For example, Sibyl's median percentage scores in the developmental category were as follows: period of infancy, 102; early babyhood, 117; middle babyhood, 110; late babyhood, 110. Larry's scores for the same four periods were 95, 85, 66, and 88; his total range, 29 points, was one of the greatest. Another category in which the babies were remarkably consistent from age to age was that called "all non-scorable items as percentage of all reactions." In so far as the baby's personality was expressed by his proclivity for doing things other than those demanded by the test situation, it remained fairly constant from age to age.

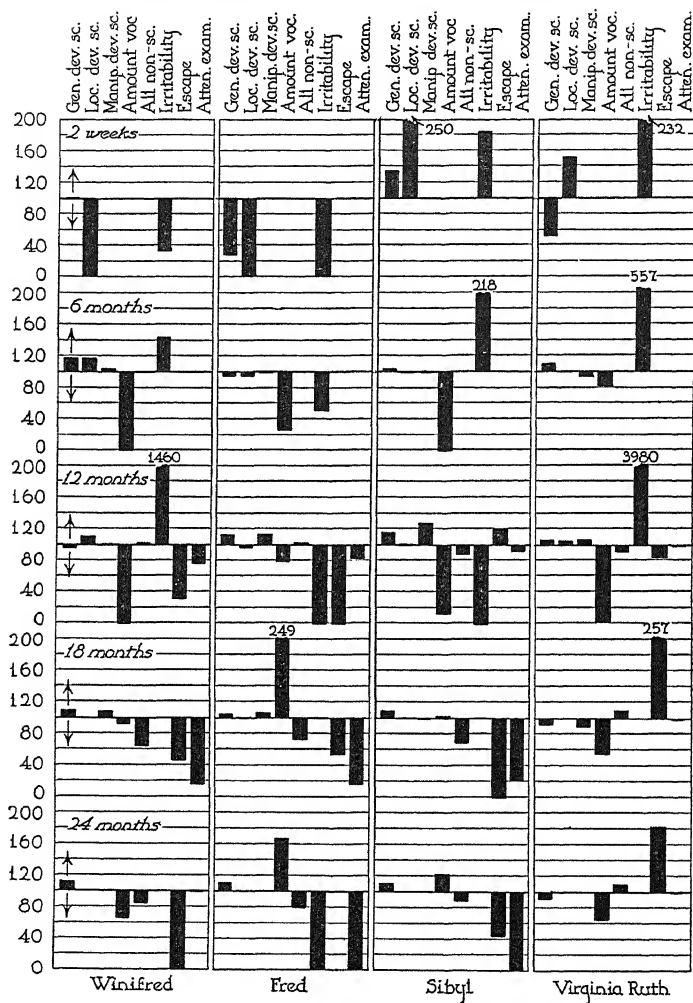
Point scores, developmental scores on vocalization, point scores on manipulation, and the non-scorable reactions of random play and passive holding of objects were categories showing between 25 and 50 per cent ranges in median scores for the different age periods. In these traits personality was not quite so constant as in some others. Even more variable than these categories were those of total vocalization and point scores on vocalization.

Finally, the categories in which most of the babies changed more than 50 points in median percentage scores from age to age were escaping and chewing of objects and the social reactions of paying attention to the examiners, seeking their help, and trying to draw their attention.

Constancy of babies. — The degrees of constancy and change differed, too, from baby to baby. Virginia Ruth and Max, for example, were very consistent in all traits except escape, irritability, and the social traits (see Figure 5). Max's percentage scores in every category were almost identical from age to age, and Virginia Ruth varied within a 25-point range or less in almost every trait except those mentioned above. These babies may be said to have had fairly well-defined personalities from birth on. Once they established their position in the group they maintained it.

A few babies, Walley and Judy among them, varied greatly from age to age in vocalization and in the social traits. Martin showed almost no variation in developmental scores but great variation in point scores from age to age. Since developmental scores represent ability to do and point scores represent willingness to do, Martin's relative ability changed little from age to age, but his inclination to perform the tasks of the examinations shifted greatly according to his interests. The percentage scores of Winnie and Fred changed considerably with age; those on the scorable items increased rather markedly up to the end of the first year (see Figure 5). Their rise in percentage scores is perhaps to be attributed to their faster growth and development after overcoming the effects of prematurity at birth. The greatest variability from age to age occurred in the cases of Maurice and Don, whose percentage scores shifted with little rhyme or reason.

FIGURE 5
SCORES OF FOUR BABIES IN SPECIFIED ITEMS
AT INTERVALS OF 6 MONTHS
 (Percentage of Median Scores of the Group)



Shifts in percentage scores, however, do not necessarily mean shifts in rank in the group. Virginia Ruth's percentage scores in irritability were 232 in the neonatal period, 557 in the period of infancy, and 3,980 in the period of early babyhood — all huge shifts in terms of percentages; but her rank in the group remained the same throughout, that of highest in irritability. Similarly Judy's total talkativeness was 179 per cent in early babyhood, 241 per cent in middle, and 141 per cent in late babyhood, yet she had only one rival, Fred, for first place in vocalization.

Significance of constancy. — With regard to the constancy of the twenty personality traits, as studied by the method of percentage scores, three facts seem fairly well established. First, the degree of constancy varies from trait to trait. The traits in which the babies shift least from age to age are those represented by developmental scores; those in which they shift most are irritability and sociality. Talkativeness and skill in the use of speech hold an intermediate ground from the standpoint of change with age.

Second, the degree of constancy in these traits varied from baby to baby. A few babies changed very little from age to age; others showed marked changes. In some the status in these traits was apparently established at birth or shortly thereafter. Others did not achieve a consistent level of performance until the second year, and some not even then. In some of the babies a change in the upward direction may be explained as the catching-up process that follows the retardation due to premature birth. In one or two the process was one of slowing down, which seemed to be a sign of slightly inferior mentality. With most of them, however, the reasons for the changes were obscure.

Finally, changes in percentage scores do not necessarily mean shifts in rank. A baby's percentage score may shift hundreds of points from age to age, yet he may remain the least or the most proficient in that trait at every age.

In a word, both constancy and change characterize the personality of the baby. Traits are constant enough to make it plausible that a nucleus of personality exists at birth and that this nucleus persists and grows and determines to a certain degree the relative importance of the various traits. Some change is doubtless wrought by environmental factors, but this change is limited by the limitations of the original personality nucleus.

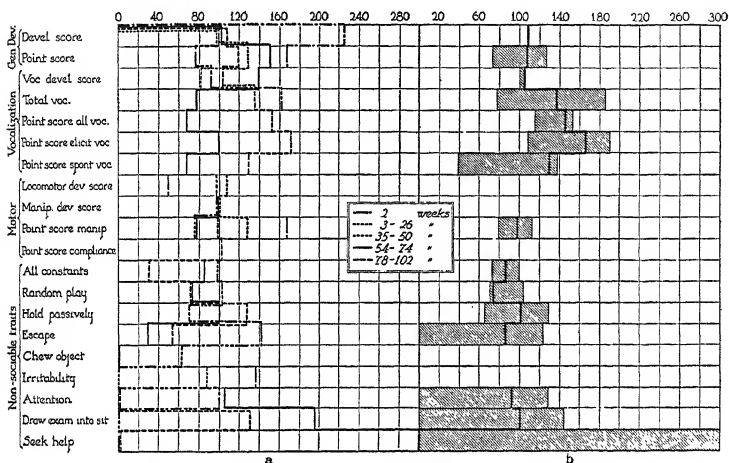
PATTERN IN PERSONALITY

The third feature of personality, pattern, can only be studied when all the traits are so organized that all can be seen at once. No adequate method yet exists for the combination of traits into an organized whole. The personality profile graph, difficult as it is to read and interpret, is the only device that can be used for this purpose.

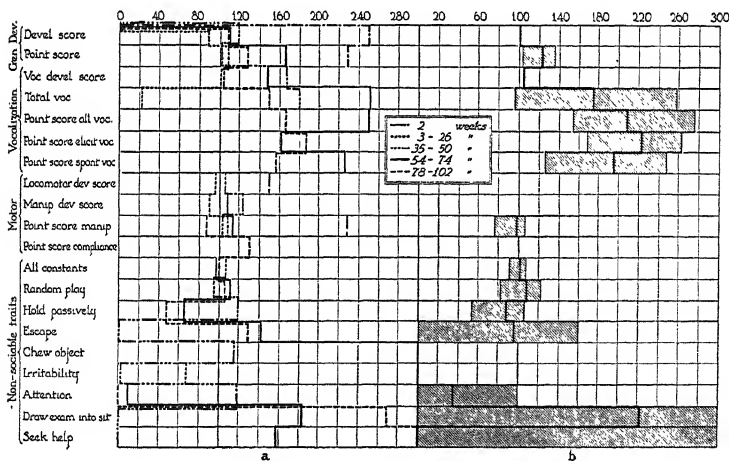
Personality profiles. — Profile graphs for the percentage scores were, therefore, drawn up for each baby. Six profiles were drawn for each child, one for each of the five age periods and one for the period from 26 to 102 weeks, in which the interquartile range as well as the median score for that period was depicted. Samples of these graphs are given in Figure 6.

In order to discover to what extent these graphs could be read and interpreted to show the true personality of each baby, the graphs were drawn by an assistant who omitted the names and marked each with a code number. The author then examined and compared the

FIGURE 6
PROFILE CHARTS OF WALLY (ABOVE) AND JUDY (BELOW), SHOWING SCORES
IN SPECIFIED ITEMS IN PERCENTAGE OF THE MEDIAN SCORES
OF THE GROUP



Medians and quantiles are shown in b.



Medians and quantiles are shown in b.

charts carefully and guessed which baby each represented. She put aside her first guess and after a few days repeated the process. On the first attempt she identified all twenty-two charts correctly; on the second she confused only two charts, those of Walley and Judy. A comparison of these two charts in Figure 6 shows the striking similarities of the two.

The profile charts were then handed over to Dr. Edith Boyd, the pediatrician, who was a co-worker in the investigation and who knew the babies as well as the author did. She had not handled any of the psychological data, however, and it is not to be expected that she would be as successful as the author in identifying the profile graphs. Of the twenty-two charts she named ten correctly. Although this is less than 50 per cent, the possible number of combinations of ten names out of twenty-two is 646,646. The likelihood of her guessing ten correctly by chance alone is, therefore, only 1 in 646,646.

Most of her errors, moreover, were good errors. The author did not point out to her that the babies fell into two rather distinct groups, high achievers and low achievers. (The characteristics and the personnel of these groups will be described below.) Even without this knowledge Dr. Boyd confused only one high achiever with a low and only one low achiever with a high. Specifically she designated Winifred as Virginia Ruth, a confusion that she attributed to Winifred's high irritability scores at the early ages. She also transferred Martin to David's place because of David's early motor precocity. Her other errors were confusions within the high- or the low-achieving groups.

Some of her errors are attributable to the fact that she remembered the children's four and a half years as a

whole, and that the first two-year period was not a clearly defined epoch in her memory. This perhaps accounted for her error with respect to Virginia Ruth, for this child was backward in speech at the test situation up to two or two and a half years. After that she overcame her negativism, and her speech became outstandingly good. A similar shift occurred in her psychological test scores.

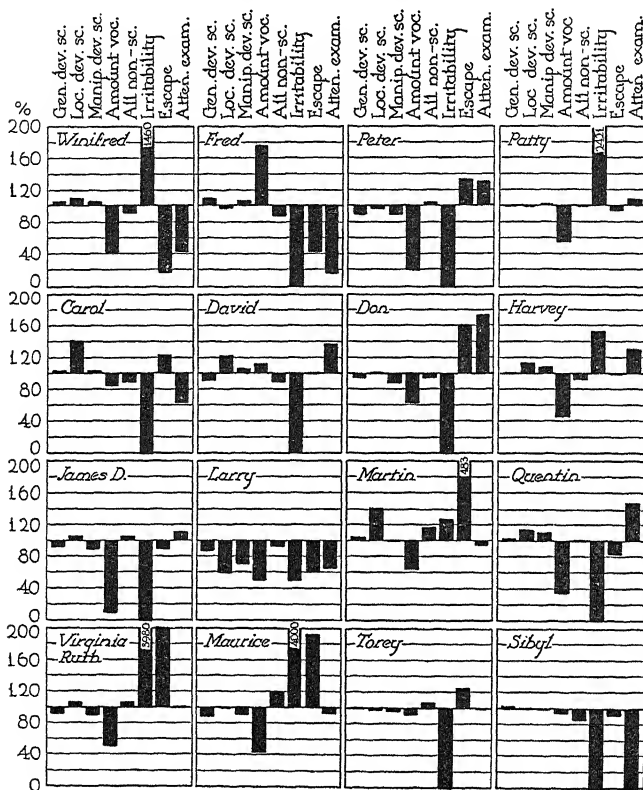
All things considered, Dr. Boyd's success in identifying ten of the profile charts and in making "good errors" on all but two of the remainder indicates that the items represented in the charts are relevant to personality. Since one who is acquainted with the entire group can, even with some difficulty and confusion, identify several babies correctly, the individual characteristics of personality ascribed to each baby by the author cannot be wholly figments of her imagination.

Individuality of the patterns. — Abbreviated profiles of each baby are shown in Figure 7. Point scores are omitted in these charts. One thing at least is clear from the profile charts: no two are alike. For the author only two charts were confusingly similar. Some of the others resembled each other in certain respects, but each had some distinguishing feature whereby it could be identified. The importance of the fact that all the profiles are different is not that it shows that these twenty-two babies were not marked with the same rubber stamp. That is self-evident. But it is important as a validation of this study. It shows that the application of a routine series of tests to the same babies and the recording of their reactions in consistent words and phrases has not served to mask their individualities.

Since it is laborious, if not quite impossible, for the reader to reconstruct the baby's behavior from these

FIGURE 7

SCORES OF ALL BABIES IN SPECIFIED ITEMS, FROM 6 TO 24 MONTHS
(Percentage of the Median Scores of the Group)



charts, the essential features of the profile for each child will be described briefly.

WINNIE. — The scorable items on this little girl's chart fell slightly above the 100 per cent line, whereas the non-scorable items fell slightly below; in other words, she performed the tests proficiently and did not

waste her energies in irrelevant responses. Her point score percentages exceeded her developmental scores; hence she lived up to her potentialities of reaction. In amount of jabbering and in spontaneous speech she was below the median, but in elicited speech and in point scores on vocalization she was above. Irritability, which increased through the first year, was coupled with low social reactions in the second year; both were manifestations of shyness and timidity.

FRED. — For Fred the scorable items in all traits except those of vocalization were little above the median, but in talkativeness his percentage scores rose far above it. His proclivity for talking was, moreover, considerably greater than his skill at it, for his percentage score for amount of jabbering was much higher than his point scores on vocalization. His non-scorable traits fell slightly below the median; irritability and social traits were conspicuously low. Scores in the neonatal period were low but increased with age, a fact that is in keeping with his prematurity. Two other charts that resemble Fred's in many ways are those of Judy and Walley.

WALLEY. — Walley's developmental and point scores for the neonatal period were very high; he was an eight-pound baby, about two weeks postmature. His profile, like Fred's, showed high percentage scores in all types of vocalization. His manipulation scores, also like Fred's, were close to the median. In social items he showed marked variability.

JUDY. — Point scores considerably higher than developmental scores characterized Judy's profiles. Her median percentage scores on vocalization were very high, sometimes as high as 250 per cent. In the pattern of non-scorable traits her chart closely resembled that of

Walley. She, too, had manipulative scores around 100 per cent and varied greatly in her social scores.

Three other children showing vocalization percentages above 100 were Sibyl, David, and Larry.

SIBYL. — Four outstanding features of Sibyl's profiles were point scores 30 per cent or more higher than developmental scores; point scores on vocalization 50 per cent or more higher than amount of vocalization; manipulative scores 20 per cent above the median; and percentages of non-scorable items in general below 100. The first indicates that this little girl achieved even higher than her developmental level would lead one to expect; the second that she outdistanced the group in comprehensible speech, but was not a great jabberer; and that superiority in vocal and manipulative performance went hand in hand with underindulgence in extraneous, non-scorable reactions.

DAVID. — David's profiles also showed achievement on point scores slightly above that on developmental scores. In vocalization he was considerably above the median, in manipulation almost at the median, and in non-scorable traits variable.

LARRY. — Greater achievement in point scores than in developmental marked Larry's performance also. His vocalization up to 78 weeks was only 50 per cent of the median, but in the latter half of his second year point scores and elicited vocalization exceeded the median; spontaneous speech remained low. Though not a talkative child, this baby could and did use speech appropriately and well when the occasion demanded. Other characteristics of Larry's profile were low scores on locomotor development and high scores on manipulation. In non-scorable items Larry departed little from the median and displayed little variability.

Superior achievers.—Although the profiles for all of the seven babies described above differ from one another in many respects, they have three things in common. All these babies had point scores somewhat higher than developmental scores. Their performance at test situations was consistently a little better than their developmental status as measured by the age at which new reactions were established. In other words they lived up to or even exceeded their developmental potentialities. They were willing workers. Second, these babies were characterized by speech development superior to the median of the group. The motor performance of some of them was a little above the median and of others a little below. Speech was the phase of development in which they were outstandingly superior. Finally, they were moderate in their extraneous activities; they did not go to excess in random play, escape reactions, and irritability. For the most part their indulgence in non-scorable reactions was slightly below the median. To the extent that attention to the test situations and performance of the tests can be said to be the business of the babies in this study, these seven babies “tended to their knitting” and did not fritter away their energies in unproductive ranting and play. They are to be contrasted with the seven babies described below.

JAMES DALTON. — One impressive feature of James's profile is that developmental and point scores in the neonatal period were very high above the median but decreased at the succeeding age periods up to one year, after which they reached a stationary level. His developmental scores were slightly higher than his point scores; all his vocalization scores were less than 20 per cent of the median; and his manipulation scores were about at the median. In non-scorable items of random

play, passive holding, and attention to the examiner he was slightly above the median. His irritability scores were 6 per cent at the neonatal period and zero thereafter.

QUENTIN. — Quentin's profiles showed developmental and point scores virtually equal except in manipulation, in which his point score exceeded his developmental score by about 10 per cent and was above the median. In spite of trembling lack of surety in his reaching and manipulation, through his willingness and persistence in fine motor performance he scored high point scores.

In vocalization he was below the median, his scores ranging around 60 per cent. His irritability exceeded 240 per cent in the neonatal period and in infancy, but decreased to zero in the latter half of the first year. In the social reaction of watching the examiners he varied greatly and exceeded the median.

VIRGINIA RUTH. — Virginia Ruth's point scores also were slightly inferior to developmental scores except in the case of manipulation, for which the two were almost equal. In vocalization she was below the median; her scores, like Quentin's, fell in the neighborhood of 60 per cent. In two non-scorable traits, escape and irritability, she far exceeded the median. In the second half of the first year her irritability was almost 4,000 per cent, and in the second year she varied greatly in the escape reaction, in which she had a median of 200 per cent. She also varied greatly in the social reactions of drawing attention and seeking help.

Four other babies had developmental scores very much higher than point scores.

MAURICE. — One of these was Maurice, whose developmental scores were about 90 per cent but whose

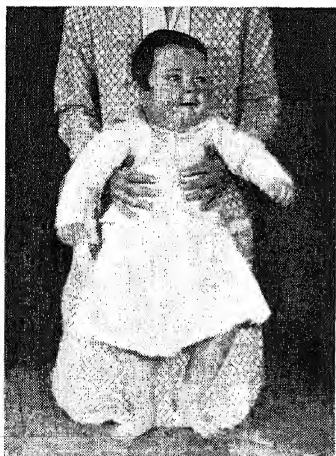
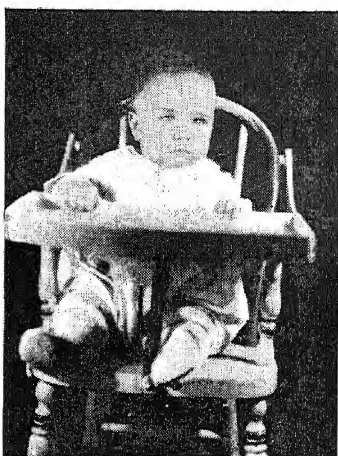
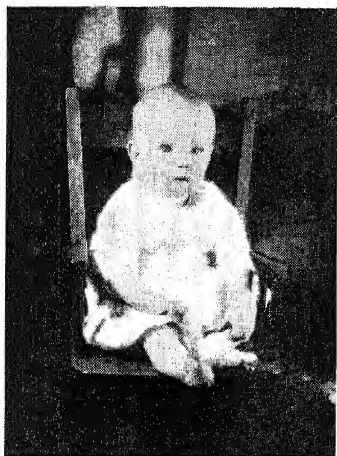


PLATE I. — FOUR REAL PERSONS

Upper left. — Shy Quentin at 33 weeks. *Upper right.* — Bored Peter at 33 weeks. *Lower left.* — Independent Virginia Ruth at 38 weeks. *Lower right.* — Affable James Dalton at 38 weeks.

point scores fell to 60 or below. He was lower in vocalization than in any other scorable trait, but he was low in manipulation also. Like Virginia Ruth, he was far above the median in the non-scorable traits of escape and irritability. He was likewise far above it in chewing of objects.

DONOVAN. — Don's developmental scores also exceeded his point scores, except in the trait of manipulation. His vocalization varied greatly in amount, but in quality it was below 40 per cent of the median. In the non-scorable reactions of escape and attention to the audience he not only exceeded the median by 60 per cent or more but displayed very high variability.

MARTIN. — Developmental scores exceeding point scores characterized Martin's profile also, except in manipulation. All his vocalization scores except that on elicited speech were below the median. His manipulation was slightly above it. In escaping and in chewing objects his scores were between 300 and 600 per cent of the median. In irritability he likewise exceeded the median, but scores decreased at successive age levels.

HARVEY. — Harvey's point scores also were inferior to his developmental scores in all traits except manipulation. His speech was considerably below the median. In random play and attention to the examiners he exceeded the median and in the escape reaction he showed high variability.

Low achievers. — These seven babies likewise differed greatly from one another, yet all had certain things in common. All showed discrepancies between developmental scores and point scores which indicated that for some reason they did not live up to their developmental potentialities. All were inferior in vocali-

zation. In manipulation some exceeded and some fell short of the median; in this they were more nearly like the first group of seven. It is also significant that these babies in general exceeded the median in non-scorable traits. In the cases of three of them, irritability, escaping, and chewing objects apparently accounted for the discrepancy. Three others indulged in social reactions at the expense of performance in the tests and the other diverted himself in several non-scorable ways.

Records of the eleven other babies were incomplete in some details, but partial profiles were drawn up for eight of them. From inspection of the profiles it seems likely that they all could be classified in one or the other of the above-mentioned groups. Carol and Edith Ann apparently belong in the first group, in which point scores exceed developmental scores and vocalization is above the median. Irene May, Peter, Patty, and Torey belong in the second, in which developmental scores exceed point scores and vocalization is below the median. Doris and Max, for whom records stopped at the end of the first year, are hard to place in either category. It looks, however, as if Doris, with her early vocal achievement, would have been in the first, and as if Max, with his high percentages in the non-scorable items of escape, irritability, and drawing of the examiners' attention, would have been in the second.

Significance of pattern. — The two outstanding facts about the personality pattern of babies, in so far as it has been determined by the methods of this study, are that each baby's pattern is distinct and individualistic but that two general types of pattern are to be found in the group. One type is characterized by achievement scores greater than developmental scores, superiority in vocalization, and suppression of extraneous acts that

are not adaptive responses to the test situations. The second type is distinguished by achievement scores inferior to developmental scores, inferiority in vocalization, and indulgence in extraneous, non-adaptive reactions.

The fact that high scores in vocalization go with point scores higher than developmental scores may lead the reader to believe that the point scores were composed largely of vocal items, or at least that they figured more prominently than did scores on manipulation in the point scores. Such is not the case, however, for vocalization scores, as will be seen from the data given in Volume II, Chapter XIII, made up only about 20 per cent of the total point scores. Even if they had been overweighted in the point scores, this would not explain why the developmental scores in vocalization alone were higher than point scores on vocalization for the low-achieving babies and lower than the point scores for high-achieving babies. It seems as if a true positive relationship exists between vocalization and ability and a negative one between non-adaptive responses and ability.

SUMMARY

In so far as the personality of these babies was displayed by all their reactions to this series of psychological tests throughout the two-year period, and in so far as developmental scores, point scores, frequency scores, percentage scores, and profile graphs are adequate methods for handling these personality data, the material suggests several generalizations. First, with respect to developmental changes in personality, it seems clear that in the first two years of life growth and development proceed so rapidly that their force is felt

in every trait; in no baby and in no trait are individual characteristics strong enough to alter the course of the developmental curve. In other words, all babies conform to the developmental trend in all traits.

Second, in spite of this adherence to the age trend, individual differences are extremely great; when the group median is used as the basis of comparison, individual scores on all traits vary from zero to 200 per cent and on many traits from zero to infinity.

Third, the individual babies are most consistent and constant from age to age in developmental scores and point scores, which represent composite scores on many traits and items, and in total non-adaptive or non-scorable items, likewise a composite score. They change considerably from age to age in the quality of their vocalization and in the amount and quality of their manipulation. They exhibit very great changes in the non-scorable reactions of irritability and sociality. The degree of constancy, therefore, depends on the trait. Some babies are far more consistent and constant in their reactions than others. The fact that some consistency exists from birth on makes it plausible that personality is to a certain extent an inborn trait. Although the original personality is doubtless modified to some extent by environment, it nevertheless retains its identity, and its influence on the baby's reactions is clearly discernible throughout the first two years at least.

Finally, with respect to pattern of personality each baby is distinctive; the combination of traits is not the same for any two babies. There are, however, two general types of pattern, the one characterized by high general achievement, proficiency in speech, and a small percentage of non-adaptive responses, the other by

achievement lower than developmental status, inferior development of speech, and an abundance of non-adaptive responses. In the latter group it is impossible to tell whether the tendency to indulge in non-adaptive responses causes the poor achievement or whether extraneous reactions compensate for inability to achieve — whether, in other words, the baby finds non-adaptive responses more diverting or whether, since he cannot make the adaptive responses, he makes non-adaptive ones merely to fill in his time.

Developmental change, constancy, and pattern — these three earmarks of personality are apparent in the reactions of babies under two years to psychological examinations. We may say therefore that personality does exist in babyhood and that a rich harvest of information on personality may be reaped from a sowing of psychological test situations.

CHAPTER IV

PERSONALITY AS EXPRESSED IN INCIDENTAL REACTIONS

The number and variety of acts performed by the babies during an observation period far exceeded the range and scope of their reactions to the test situations. Since the observer could not anticipate all the stunts the babies might pull, she could not make out a recording system in advance. The only possible way of making a permanent record of these interesting bits of behavior was to jot down a brief description of them. Hence the original test records for every baby at every examination contained a sprinkling of such incidental items.

In order that these items might be treated quantitatively, each was copied out on a separate card. The number of items for individual babies ranged from 54 to 231. The total was 2,972, an average of 2.2 items per visit. These incidental items were further supplemented by 471 notes and anecdotes copied from the records kept by the mothers.

Although no two incidental items were exactly alike, they had to be classified into categories in order to be treated quantitatively. A preliminary classification system was tried out; after several revisions it was considered satisfactory, and each baby's items were classified and their frequency was tabulated according to categories. The total number of reactions in each category was then converted into a percentage of the total number of examinations of each child.

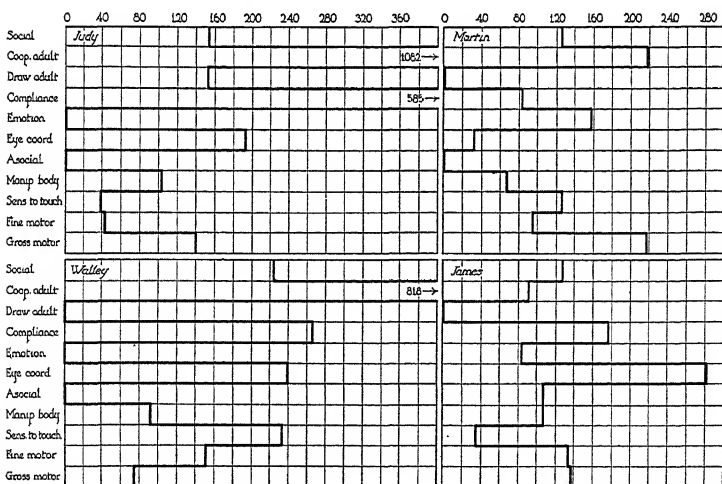
CLASSIFICATION OF INCIDENTAL ITEMS

Fifteen major categories were made, a few of which contained one or more subclasses. The type of reactions recorded under each category will be briefly described below.

Social reactions.—All activity directed toward persons was classified as social. This category contained eleven subclasses. Under "cooperative play with a child" were listed such reactions as that of Walley when, at 47 weeks, he snorted alternately with his 4-year-old sister, Libby, several times, and repeatedly dropped a bell from his high chair for her to pick up for him. This type of social reaction was more often noted in the twins than in the other babies, since they had

FIGURE 8

SAMPLE CHARTS SHOWING INCIDENTAL REACTIONS OF FOUR BABIES
(Percentage of the Median Scores of the Group)



greater opportunity for cooperative play. It was noted in Peter at 45 weeks when he held out toys toward Patty, jabbering to call her attention, and when he crawled to her and reached for her playthings. The whispered "choo-choo" that escaped the lips of Fred when Winnie pushed her train of blocks across the floor is still another example of this kind of cooperation between babies.

"Cooperation with an adult" in work or play included reactions of holding out the hand, turning over, or changing a toy from right to left hand at Dr. Boyd's request during the measuring process. It also included cooperative games of peeka-boo with the baby's mother. "Watching persons" and smiling at them was a third type of social reaction. "Drawing an adult into the situation" included reactions other than those made during the examination proper and recorded under that heading. Don, who was particularly prolific in reactions of this kind, did such things as climb up on the writer's lap and point to her notes, pick up a microscopic fragment from the floor and hand it to S, and bring his toy airplane for B's admiration.

Under "manipulation of another person" were classified the social exploration of an adult's eyes, nostrils, and mouth by the baby's prying fingers, pulling hair, plucking at the mother's dress or clinging to her skirts, fingering B's wrist watch, and rubbing, patting, or scratching an adult's arm or face. Looking, smiling at, and patting his own image in the mirror was also considered a social reaction.

"Sympathy with another child," a social reaction of rare occurrence, was manifested in such acts as Winnie's comforting kiss when Fred bumped his head, and her remark, "Poor Freddie, poor Freddie," when he was seized with a fit of coughing. David once made a tour

of investigation when he heard his older brother, Gordon, crying in the kitchen. Sometimes the babies seemed to share the joys of older children and adults; Don shouted in glee when other children whooped and hallooed, and as early as 18 weeks Fred jounced in excitement when father and brothers indulged in a little rough-house play.

Asocial reactions. — Under “asocial reactions” were classified notations of bashfulness, shyness, hiding the head in the mother’s lap, and fussing in the presence of strangers.

Emotion. — Under the heading of emotion were grouped reactions indicative of fear, dislike, and anger. The greatest number of these belonged to the fear group. They included such notations as “Screamed violently as if frightened when measured on board,” “Cried as if frightened throughout measurements,” and “Dropped his rattle on his chest; cried as if frightened.”

Expressive reactions. — Under this heading were classified reactions indicating eagerness or excitement. Flopping or waving the hands in anticipation of a toy that was offered, scrubbing the heels on the floor, and bouncing and jouncing with evident pleasure are examples of these reactions.

Compliance with commands. — Commands or suggestions other than those given as part of the test situation were recorded and the baby’s compliance was noted. Such simple commands were: “Open your mouth,” “Go get the ball,” “Pick up the handkerchief,” and “Sit down, so you can listen to the music.”

Eye coordination. — Unusual bits of visual attention were grouped under this heading; a few examples are watching the motes in a sunbeam, noticing the flash of sunshine reflected by a mirror, examining shadows, and looking at birds in the trees or at passers-by in the street.

Sensitivity to touch. — Items on skin sensitivity or ticklishness were gleamed mainly from the physical and anthropometric examinations. Sometimes the babies expressed a slight distaste for a sensation by pushing away Dr. Boyd's hands as she felt for lymph nodes or measured the head. Frequently the slipping of the tape under the baby's back or around chest and abdomen brought forth grunts or giggles and slight flinching. The Babinski reflex and the foot-greasing process often aroused chuckles, squeals, or wriggles.

Manipulation of own body. — Rubbing the face or eyes, slapping the stomach, scratching, and rubbing and pulling at clothes were put into this category. Thumb-sucking was not included in this group.

Gross bodily movement. — All the items on creeping, climbing, walking, jumping, rocking, swaying, bouncing, and riding kiddy-cars were classified as gross motor activity. The reactions included under this head have been discussed in detail in Volume I, Chapter X.

Fine motor reactions. — Pointing, reaching, touching, patting, poking fingers in holes, and manipulating objects in ways other than those recorded at the tests were included in this group. Many of these reactions have been described in Volume II, Chapter II.

Self help. — When the babies occasionally helped in the process of dressing or undressing, pulling off their own stockings or caps, or when they ran to the kitchen for a drink of water during the test, the reactions were noted and subsequently classified as self help.

QUANTITATIVE TREATMENT OF INCIDENTAL ITEMS

The categories of fine motor control, social reactions, and gross motor control contained the largest number of items. Manipulation of the body and sensitivity to

touch contained about an equal number of items. The number of incidental reactions, expressed in percentage of the total number of examinations, is shown in Table V. The magnitude of the individual differences shows up clearly in this table. Individual scores scatter widely about the median. The semi-interquartile ranges are larger than the medians in some instances, and none is as low as one-fourth of the median. Winifred, the median child in social reactions, had 41 per cent; but the group ranged from Maurice, who had only 18 per cent, to Harvey, who had 111 per cent, or more than one reaction for each examination in this category. The range in categories containing a small number of items was relatively much greater than in categories containing a large number.

Since the incidental reactions cover so wide a range of behavior, they go far toward filling the gap between a knowledge of the babies' reactions to *test* situations and knowledge of their reactions to *all* situations. The all-pervasive nature of personality is to be seen in these spontaneous and unexpected reactions quite as clearly as in the more ordinary responses at the examinations.

Change. — The combining of all the incidental items for the two years precludes the quantitative study of *change* in these reactions. The reactions in each category were too few to be summarized by weekly or monthly age periods, and hence we cannot draw age curves showing the development of each trait. Qualitatively, however, development is shown by these various incidental happenings. The summaries of the descriptive accounts by age periods given in the chapter on locomotor play in Volume I and in the chapters on fine motor play and social behavior in Volume II amply illustrate the point that incidental play reactions are

TABLE V
NUMBER OF INCIDENTAL ITEMS EXPRESSED IN PERCENTAGE OF THE TOTAL NUMBER OF EXAMINATIONS

BABY	SOCIAL REACTIONS	COOPERATION WITH CHILD	COOPERATION WITH ADULT	DRAW ADULT INTO SITUATION	ASOCIAL REACTIONS	EMOTIONAL REACTIONS	FEAR REACTION	EXPRESSIVE REACTIONS	REACTANCE OF COMPLIANCE	EYE COORDINATION	SENSITIVE TO TOUCH	MANIPULATE OWN BODY	GROSS BODILY MOVEMENT	FINE MANIPULATION	SELF HELP
Winifred.....	41.0	23.0	7.0	5.4	1.8	...	...	11.3	...	5.4	...	1.8	20.0	43.0	...
Fred.....	39.0	9.0	16.0	5.4	...	5.4	1.8	10.7	...	7.1	...	8.9	25.0	68.0	7.1
Carol.....	34.0	...	7.1	10.7	57.1	5.4	1.8	2.4	1.8	7.1	...	23.0	19.6	89.0	...
Doris.....	50.0	...	...	8.7	4.3	6.5	6.5	18.8	...	8.7	4.3	2.2	48.0	83.0	...
David.....	66.0	1.5	13.8	1.5	4.6	6.2	6.2	19.5	4.6	4.6	10.8	12.3	37.0	75.5	4.6
Don.....	91.0	...	11.1	39.0	3.7	...	...	35.8	5.7	9.3	7.4	24.1	85.2	115.0	7.4
Harvey.....	111.0	...	23.0	1.6	...	...	...	29.0	3.3	11.5	21.3	26.2	82.0	74.0	1.6
James.....	52.0	...	3.2	...	1.6	1.6	1.6	7.0	3.2	12.9	4.7	14.5	34.0	100.0	4.7
Irene May.....	36.0	...	...	4.0	...	2.0	2.0	12.7	...	2.0	28.0	...	12.0	84.0	...
Larry.....	20.6	...	2.9	4.4	1.5	...	...	24.5	2.9	1.5	19.1	11.8	23.6	51.5	5.9
Martin.....	51.5	...	7.6	...	...	3.0	3.0	19.2	1.5	1.5	16.7	9.1	54.7	71.3	...
Quentin.....	25.7	1.5	3.0	...	7.6	7.6	7.6	26.8	1.5	1.5	12.1	13.6	22.8	42.5	1.5
Virginia Ruth.....	34.6	...	3.5	3.5	10.3	1.7	1.7	14.4	...	...	19.0	13.8	29.3	31.1	...
Sibyl.....	24.1	...	5.7	...	...	1.9	1.9	32.7	7.4	7.4	22.2	14.8	11.1	112.8	1.9
Maurice.....	17.9	...	1.5	...	...	3.0	3.0	23.9	...	1.5	7.5	10.4	28.4	38.8	1.5
Torey.....	53.0	...	2.0	16.3	4.1	...	...	36.7	...	...	16.3	20.4	24.5	100.2	...
Judy.....	63.2	...	37.9	3.5	...	...	...	63.7	10.5	8.9	5.3	14.0	35.1	31.6	1.8
Peter.....	35.8	23.2	1.8	...	...	36.6	1.8	27.4	...	3.6	25.0	23.2	8.9	39.3	...
Patty.....	66.1	...	...	...	1.8	5.4	3.6	26.8	1.8	1.8	28.6	56.4	21.4	41.0	...
Walley.....	92.2	23.9	28.6	...	...	...	...	29.6	4.8	11.1	31.8	12.7	19.1	114.1	...
Max.....	38.7	...	2.3	2.3	...	...	...	33.3	2.3	...	13.6	11.3	52.3	115.9	...
Median.....	41.0	0.0	3.5	2.3	1.5	1.9	1.8	24.5	1.8	4.6	13.6	13.6	25.0	74.0	0.0
S.I.R.*.....	10.7	.8	4.6	2.7	2.2	2.7	1.5	10.0	2.3	3.7	8.8	7.0	14.2	29.6	2.3

* S.I.R. = semi-interquartile range.

always in keeping with the stage of development and that they progress according to the developmental sequence. Development determines what types of social, motor, manipulative, and emotional play the baby will indulge in, and it influences, but does not completely determine, the frequency of each reaction. All babies between 6 and 9 months will spend a great deal of time in strenuous motor play, jouncing, rocking, dancing, rolling, pivoting, crawling, creeping, and pulling to sitting and standing postures. For most babies motor reactions will be more frequent than social, vocal, or manipulative reactions during this period. But one baby will have vastly more social behavior in proportion to his motor activity, whereas another will have more vocal or more manipulative play.

Constancy. — Since the incidental categories were not worked up by ages, their constancy from one age period to another cannot be determined quantitatively. One may assume, however, that categories containing a large number of items represented stable and constant interests, whereas small categories contained items of but transitory importance. The consistency of these items can be checked by comparing reactions in each incidental category with reactions to the test most closely related to that category. Incidental social reactions may be compared with reactions recorded under watching the examiners, drawing them into the situation, and seeking their help. Incidental compliance may be checked with point scores on compliance. Emotional and asocial reactions may be compared with the developmental and point scores on locomotion and on manipulation.

In making these comparisons the standing of each baby in each of the five incidental categories named

above was rated on a five-point scale as high, above the median, median, below the median, and low. Their standings on test items in the corresponding categories were rated on the same scale. Fifty-eight per cent of the ratings on the corresponding incidental and test categories were identical; for example, the ratings of social reactions were both high, both above median, both median, both below median, or both low. In 32 per cent of the ratings the discrepancy was only one or two places on the rating scale; that is, high and above median, high and median, above median and median, above median and below median, median and below median, or median and low. In only 10 per cent of the ratings was the discrepancy as much as three or four places on the rating scale; that is, high and below median, high and low, and above median and low.

These detailed comparisons may be somewhat clarified by a few examples. Judy, Don, Walley, David, and Harvey, who had a large number of incidental social reactions, were also high in the reactions of watching the examiners, drawing their attention, and seeking help in the test situations; and Maurice, Virginia Ruth, and Quentin were low in incidental social behavior as well as in social reactions to the tests. The three babies last named were high in the incidental asocial, emotional reactions and in irritability and escape reactions. Sibyl and David were high in reactions of compliance as measured by both the incidental and the test reactions, whereas Maurice and Virginia Ruth were low in this type of behavior. Martin's high motor activity was displayed both incidentally and in test situations. The babies who were in the middle range in amount of incidental reactions under each category were also in the middle range in the corresponding reactions at the test situations.

Although the agreement is not perfect between the incidental items and the test reactions in each category, yet it is high enough to lend considerable weight to the findings. The consistency of the results obtained by the two methods serves as a partial check of the validity of both. The true characteristics of the baby's personality will stand out whether he is observed only during a routine test situation or while engaged in his own spontaneous play, provided the tests or observations are repeated often enough to get fair samples of his behavior.

Profiles from incidental items. — In order to make the treatment of these items consistent with that of reactions to the test situation, the scores for each baby on each item were converted into a percentage of the group median, and individual profile charts were drawn. By dint of much effort the author was able to identify most of these charts, but the guessing process was far more difficult than that reported in the previous chapter. The greater difficulty in identifying the charts is attributable not to greater similarities in the profile charts, but to the greater difficulty in remembering incidental behavior. The profiles were even more dissimilar than those for reactions to the tests. In fact, similarities were too slight to permit their classification into distinct types. Some babies, however, showed a predominance of items in the social category, others in the asocial, the motor, or the emotional. Examples of these profile charts are given in Figure 7. The charts are for the same babies whose charts were presented in Figure 6, so the reader may make his own comparisons.

For the most part the baby's pattern of traits as obtained from the incidental reactions was similar to that obtained from the psychological examinations. The most prominent features of the profiles of Judy and Walley are their high scores in the social traits and

in compliance with commands. As designated by the tests these two babies belonged to the group of high achievers, and they had high social scores. Sibyl's incidental reactions were high in the categories of compliance, manipulation, cooperation with an adult, and sensitivity to touch. These findings are in keeping with her superiority in the scorable test reactions. Both Fred and Winifred were high in the social reactions of cooperating with an adult and drawing an adult's attention; Winifred was slightly above the median in asocial reactions, which is consistent with her increasing irritability at test situations during the first year. Drawing an adult's attention and compliance were the items in which Larry most exceeded the median. David likewise was high in compliance, as well as in social reactions, although he also exhibited a large number of emotional and asocial reactions.

These seven babies who were designated as high achievers on the psychological examinations, and who excelled in speech, are superior to the median in incidental compliance, and most of them manifested more social reactions than the median.

Martin's incidental reactions were predominantly motor; his locomotor development and his escape reactions at the examinations were likewise high. Quentin's high emotional and asocial incidental items have their counterpart in his high irritability during the tests. Virginia Ruth's asocial incidental reactions were more than six times as frequent as those of the median; her high irritability and escape reactions at the test situations likewise stamp her as an asocial baby. Maurice had high emotional reactions; he, too, was irritable and escaped at the test situations. Don, who was very prolific in incidental items, far exceeded the median in the

social, compliant, asocial, and gross motor reactions. His social and his motor and asocial propensities were illustrated, respectively, by great attention to the examiners and by escaping. Harvey's incidental behavior also showed high social and high motor activity accompanied by great attention to the examiners and a great tendency to escape. Eye coordination and compliance were James's outstanding incidental reactions.

For these seven babies asocial behavior, great motor activity, or inattention, or a combination of the three, provides an adequate alibi for their inferior achievement at the test situations. The records of the remaining babies were somewhat affected by the fact that they were incomplete. Max's incidental items were predominantly motor, Doris' were social and motor, Carol's and Patty's emotional and asocial, and Torey's social. Irene May and Peter were somewhat low in incidental behavior.

Quantitative treatment of the incidental behavior of these babies thus brings out patterns of personality that are consistent with those obtained from the treatment of the reactions to test situations.

QUALITATIVE ANALYSIS OF INCIDENTAL REACTIONS

The frequency of the baby's incidental reactions in a given category does not show at all the individuality of the responses classified under that head. The motor activity that Martin indulged in differed greatly from Don's, although each had a great number of motor items. Likewise the asocial reactions of Virginia Ruth and Maurice were very different from those of Carol and Quentin. Individuality in the locomotor play responses has been described and discussed in Volume I, Chapter X, and characteristic manipulative responses

to the early choice tests are described in Volume II, Chapter IX. The differences in manipulative, social, emotional, and intellectual reactions from baby to baby can best be described by excerpts from lists of the incidental reactions of each child. These reactions will be cited without comment in this chapter, but they will be organized and interpreted, together with the reactions to the examinations, in the chapter devoted to personality sketches.

WINIFRED. *Manipulation*.—Winnie manipulated toys gently and skillfully, but there was nothing unusual or particularly striking in her fine motor coordination. She was slightly more skillful than her twin, Fred, in manipulation as well as in locomotor development. Her mother reports that Winnie rolled a celluloid ball and definitely dropped it to see it bounce at 49 weeks. The mother tried to teach Fred to bounce the ball but he “couldn’t get the idea.” Winnie subsequently learned to feed and dress herself long before Fred did.

Social reactions.—The social life of Winifred centered about Fred. As early as 15 weeks her mother reported that she smiled and leaned toward Fred, who sat near her on the bed, cooing and babbling to her. By 39 weeks she was showing her affection for Fred by patting him; she also manifested fondness for her older brother Phil by cooing at him and laying her cheek against his. Early in their second year Fred began to take toys away from her. She usually objected to this, but at 68 weeks, when he reached for the pencil she was playing with, she smiled sweetly and gave it to him. At 78 weeks when he started to the clothes hamper with too big an armful of laundry she ran to help him. She sometimes interfered during Fred’s examination by her efforts to help him. At 82 weeks she got out of her

chair to point out Mother's picture for him, and a few minutes later she patted his head. At 86 weeks she scooted off sister Florence's lap to kiss Fred; at 94 weeks she helped him when he walked on the paper and when he was putting away the toys at the compliance test. Two examples of her expressions of sympathy for Fred at 98 weeks were cited earlier in this chapter. She was sometimes annoyed by his interference with her own activity, however, as was indicated by her petulant "Go way, Freddie," during her examination at 102 weeks. Her social reactions to familiar adults were friendly and cooperative.

Emotional responses. — Fear of strangers began to figure in her mother's records when she was 16 weeks old. At this time her father, who had just returned from a four-day trip, was quietly talking with her mother. After watching him intently for some time, Winnie suddenly began to cry as if afraid. Even after her mother had soothed her she kept an apprehensive eye on him. Thereafter the mother's records contain many such notes as "Cried at caller but later allowed caller to hold her"; "A bit afraid of Daddy, later laughed and cooed to him"; "Cried when neighbor came to crib"; "Cried evidently in fear when I appeared in dark dress"; "Slight cry of dismay at caller"; "Looks for me if stranger comes near"; "Wept a bit when uncle and aunt came calling"; "Cried looking at my hair, which I had curled"; "Wept copiously when eight ladies came to see babies." After 27 weeks such notes are less frequent, but there are references to her timidity and bashfulness throughout the two years. Her shyness at 82 and 86 weeks was expressed by rubbing her eyes and nose. Her brief nursery school experience early in the third year was one of loneliness for her; even though Fred was with

her she grieved inconsolably for home and mother until her family wisely enough took the twins out of school. She gave evidence of recognizing the limitations her timidity placed upon her and of consciously trying to overcome it. At 4 years old she remarked to her mother, who was preparing for a dinner party and who had promised the twins that they might stay up till the guests arrived, "Mother, I'm so glad I'm not afraid of people any more, because I can have a good time too."

Intellectual behavior. — Although few of her incidental items were classified in the category of intellectual behavior, Winifred was always intellectually alert and eager during the tests. Although quiet and unobtrusive, she performed even better than her brother, who was more spectacular in his reactions and who sought the limelight.

FRED. *Manipulation.* — Fred's early manipulation was often of the slashing and banging variety. At 25 weeks the note was made: "Movement very deliberate and slow; takes a thing and keeps it. Lackadaisical and lazy-acting." Between 42 and 54 weeks he had a habit of holding a toy in his hand and waving or shaking it by a gentle wrist-flexion movement. Later he tended to tear apart and scatter his toys much more than his sister did.

Social reactions. — Whereas the majority of Winnie's social reactions were directed toward Fred, the greater portion of Fred's were directed toward adults and were apparently for the purpose of attracting attention. That he had gained some insight into his own motives by the age of 4 is indicated by his serene reply, "Well, why shouldn't I?" to his mother's annoyed exclamation that he was always doing naughty things just to attract attention. Unlike Winnie, he enjoyed strangers; at 14

weeks he was taken to a neighborhood party and showed no distress at being passed around from one woman's arms to another's; and at 27 weeks he thoroughly enjoyed the visit of the eight ladies who so upset Winnie. As early as 13 weeks he had developed a very simple peeka-boo game of laughing at his parents when he had wriggled his face out from under a handkerchief they had spread over him. By 20 weeks he had ceased to play this game, but he resumed it again later with renewed interest. It had definite play connotations for him. His enthusiastic entrance into the play of father and brothers has been mentioned above. At 45 weeks his mother reported that he laughed at all the family jokes, not, of course, because he understood them but because everyone else laughed. A teasing reaction of holding out a toy to his older brothers or to Winnie and then snatching it away developed early in the second year.

His interested attention to Winnie began at 14 weeks, when he smiled at her for the first time. At 33 weeks his mother wrote, "Crazy about Winnie is the only way to describe it. He tries to attract her attention and laughs and coos with her." At 43 weeks when Winnie hummed Fred turned toward her and joined in. After he reached the run-about stage it was difficult to keep him from interfering with Winnie's examination.

He accepted as his due Winnie's devoted helpfulness. At 4 years Winnie usually helped him into his clothes after she had dressed herself. Mother decided that Fred was depending too much on Winnie and instituted a self-help program for him. One busy wash day morning she was unable to superintend his slow dressing maneuvers, but she gave instructions. "Now, Fred, you dress yourself this morning. Winnie, don't you help him. Freddie must learn to do things for himself." An hour

or so later she heard a commotion upstairs, and soon Fred came down neatly and correctly buttoned into his clothes.

"That's just fine, Freddie. Now why can't you do this every morning? Did you really dress all by yourself?"

"No, Winnie dressed me."

"I told Winnie not to help you this morning. Now she has dressed you so nicely, and soon you'll be kicking, fussing, and hurting her."

"Oh, well," was his nonchalant rejoinder, "Winnie loves me just the same."

Emotional responses. — The incidental emotional responses recorded for Fred were signs of eagerness and pleasure at the toys. He cried as if in fright at 15 weeks when his father leaned over the crib and touched his face, and at 70 weeks he shuddered at a sudden noise. In the third year new sounds, particularly night sounds, drew his attention. In the early spring evenings the croaking of frogs called forth the question, "What's that big noise, Mamma? I not like that big noise." A few weeks later the chirping of katy-dids brought out almost the same remark. At 4 1/2 he corrected one of his mother's friends on her "down East" accent.

Intellectual behavior. — Early signs of comprehending words by complying with simple commands made by his mother and recognition of his own and his sister's names were clues to his mental ability. Like Winifred he was eager and interested at the psychological examinations.

CAROL. *Manipulation.* — The large number of manipulative items for Carol show clearly that she was always busy with her hands. Her manipulation was gentle, exploratory, and skillful.

Social reactions. — Carol's social items were largely

made up of paying attention to and smiling at her mother and her brother Benny, who was two years older. With him she had several cooperative games, including dropping or throwing the ball from her high chair for him to retrieve. She frequently drew her mother into the examination, going to sit on the stairs beside her, showing her the picture book, or holding out the whistle for her to blow it.

Emotional responses. — Timidity and fear of strangers were first recorded by the mother when Carol was 39 weeks old. "Cries when some adults take her; likes all children," she wrote. The preceding week she had written, "Cried hard when a dog barked." At 45 weeks Carol crept away from the examiners toward her mother and the other children six times, and thereafter she persisted in the escape reaction throughout the two years. Hiding her face and eyes with her hands, and on her mother's lap, withdrawing to a corner, running away to bounce on the davenport, and hanging her head shyly and playing with her beads were her ways of expressing timidity at 104 weeks. As she had not seen the examiners for a number of weeks, they were almost strangers to her at this age. Up to this time she had been friendly enough with them, even though she did try to escape from the test. Her superior locomotor skill perhaps explains her proclivity for running around.

Intellectual behavior. — Only a very few of her items were listed as intellectual behavior. She always overcame her initial timidity and performed well in the test situations.

DAVID. *Manipulation.* — In his handling of toys David was gentle and skillful. A moving picture record of his test at 19 weeks shows his feet and toes wriggling and working simultaneously with his hands in reaching

for the bell. Rubbing and feeling objects with his feet, his hands, and his tongue testified to his interest in tactile sensations.

Social reactions.—Although David had a brother only thirteen months his senior, most of his social reactions fell in the categories of cooperation with an adult or of pulling the doctor's hair, fingering her nose, or playfully kicking her. An example of his cooperative games at 58 weeks is his holding and shaking a box, looking at the examiners, shaking it again and again looking at them, evidently trying to make them laugh at the sound. A little later in the examination by grunts and gestures he made clear that he wanted B, who had offered him the ball, to hold him in her arms and let him bounce the ball for her to catch. The examiner had previously seen David's father play this game with him. When she complied with the baby's wishes he laughed and chuckled with glee. Late in the second year he formed the habit of trotting along beside the examiners when they went to put away one set of toys and bring the next set. Despite the fact that most of his social reactions were aimed toward drawing the attention of adults, he took great delight in his small brother; as early as 18 weeks his mother recorded, "When adult comes near crib he waves his arms, talks, smiles, raises his head. When a child comes near he shows *more* interest."

Emotional responses. — Friendliness was the rule with this baby, but he occasionally exhibited asocial reactions. At 37 weeks he crept to the sun-room door through which his mother had departed, fussed slightly, and called "Mamma." From 70 weeks on he frequently escaped from the examiners for no apparent reason, and at 86 and 98 weeks he seemed a little shy during the examination. At intervals from birth to 36 weeks he

screamed violently as if frightened when his length was measured on the board, but he completely overcame whatever fear he felt in this situation, and at 104 weeks he climbed on the board of his own accord.

Intellectual behavior. — David answered each command and request with an interrogative "hunh?" or with a repetition of the last words of the command uttered with rising inflection. Whether this indicated imperfect understanding on his part or merely a predilection for questioning his elders it is impossible to say. The habit persisted long after he entered nursery school, and the writer often heard the teachers express discouragement over his apparent absent-mindedness and inattention to their requests and suggestions.

DONOVAN. *Manipulation.* — The most striking feature of Don's manipulation was his interest and skill in marking with a pencil. His collection of "drawings" made in the second year show considerably greater motor control than those of the other children. His greater skill was doubtless due partly to greater practice, for his parents and older brother gave him pencil and paper to play with; but his evident pleasure in marking must have influenced them to stimulate him. His early interest persisted and bore fruit at a later age. When he was 4 1/2 his father brought him to the Child Welfare Institute for a mental test. A few days later the psychometrician remarked to the writer, "Don Kennedy was over for his test the other day. I was so pleased with him. He is such a gentlemanly little fellow and was so cooperative. I want to show you the nice little diamond he drew for me. Isn't it perfect? It surprised me so I almost fell off my chair. Six-year-olds seldom do better than this."

Social reactions. — Don was a very social baby. In

the early months his social overtures consisted mostly in looking and smiling at the examiners and fingering the doctor's watch or playing with her hair. His mother reported that he was not afraid of strange adults and that he was very fond of children, preferring those the age of his brother to younger children. By 6 months he had begun to cut antics in order to get the attention of adults. "Yelling" to "scare" his parents, reported by the mother at 27 weeks and thereafter, was a stunt they probably had taught him. From 70 to 182 weeks he often drew the examiners or his mother or brother into the test situation, climbing up on the examiner's lap, showing the pocket in his new suit, carrying the picture book to 12-year-old Roger, motioning his mother to look at the toys, picking up a scrap from the floor and handing it to S, and putting the toys into B's lap when he had lost interest in them as if expecting her to play with them.

He was one of the few babies who definitely seemed to mimic adults. When the picture book was given him he usually lay down prone on the floor, propped on elbows, heels in the air, to look at it. It certainly appeared to the examiners and to his mother that he had adopted this reading posture from his brother, who was usually to be found stretched out on the hearth rug with a book under his nose.

Emotional responses. — Excited waving of his hands and scrubbing of his heels on the floor was Don's way of expressing delight and anticipation. In the middle of his second year he had an illness that necessitated a trip to the doctor's office to have his ear lanced. At the next examination, at 76 weeks, he screamed at the sight of B's stethoscope, and from that time until he was 2 years old she was unable to get his measurements or give him

a physical examination. He objected to the foot greasing process, apparently because it tickled. Apart from this, he was cooperative and had no asocial reactions except escaping from the examiners at 102 weeks, apparently from boredom with the test, and slight shyness at 86 weeks, indicated by a cessation of his usual jabbering.

Intellectual behavior. — Growth in comprehension of speech was shown by a long list of words and commands to which he could react correctly, according to his mother's report. Perhaps his most difficult feat of recognition was picking out his father's car from a group parked on the street. His mother reported that he could do this at 90 weeks.

HARVEY. *Manipulation.* — Patting and slapping his chest, abdomen, and thighs with good resounding smacks characterized Harvey's reactions when he lay stripped on his canvas table for the physical examinations in his 3rd and 4th months. He also smacked his lips a great deal, even when he was not being fed. His manipulation of toys at the choice tests from 6 to 9 months consisted in swinging and banging them until the strings by which they were suspended were hopelessly tangled. If during this vigorous manipulation a flying object hit him in the face or eye, as frequently happened, he was undaunted and did not cry. His mother reported that at 43 weeks he opened drawers, pushed open the swinging door between kitchen and dining room, pulled a scarf off the table and with it books, vases, and the parlor lamp, the fragile plaited shade of which he demolished with his active fingers. When the six blocks were placed before him for the test at 78 weeks, with wide brushing strokes of his arms he sent one flying into the fireplace, another under the

piano, a third under the dining room table, and a fourth under the davenport.

Unscrewing light bulbs and throwing them for their delightful pop and sputtering and spitting at guests were two habits he developed late in the second year. This vigorous slapdash manipulation was a sign neither of awkwardness nor of lack of motor skill, nor did it indicate ill temper, for he was perfectly good-natured about it all. Rather it seemed to be his way of showing off and getting and holding the attention of the adults, or perhaps simply an indication of delight in these acts for their own sake.

Social reactions. — Cooperative play with adults, manipulation of other persons, and seeking their help were his most frequent types of social behavior, but these reactions were due partly to the fact that as his only brother was fourteen years older than he, he lived in a household of adults. His mother noted that at 42 weeks he was "absolutely delighted with children and babies." She repeatedly mentioned his affection for the family, which he expressed by laying his cheek against his father's and mother's, patting, and cooing contentedly. When he was seated on B's lap for the examination he did a great deal of poking and prying at her face, patting or rubbing toys on her lap, and pulling her hair.

Symptoms of teasing first appeared at 37 weeks when he held out the harmonica to B three times and snatched it back again. At 40 weeks his mother's record contained the notation: "Baby knows that he should not put things in his mouth, but he does it to tease Mother." He was one of the first to take an interest in an image in a mirror; in fact, his mother thought he recognized her reflection when she held him in front of the mirror

at 8 weeks. At 55 weeks his mother said he was much interested in the first mustache he had ever seen.

A few items from the mother's record were classified as imitation: "Smacks lips in imitation of Mother when she is about to feed him" (26 weeks); "Shakes head 'no-no' in imitation of Mother" (32 weeks); "Whispers when we whisper to him" (35 weeks); "Tries to imitate bugle heard on the street" (49 weeks); and "Found a pair of pliers, spread them open and placed them first at head, then at cheeks, chin, and arm in the measuring positions, evidently in imitation of Dr. Boyd."

Emotional responses. — His only expressions of fear of strangers occurred at the ages of 16 and 22 weeks, when he cried at sight of S. His mother attributed the fear to S's dark-rimmed spectacles, which she thought reminded him of the physician who had been called when he was ill with tonsilitis. At 21 weeks he cried at seeing the new colored maid. Whimpering when he saw his mother in hat and coat developed at 33 weeks. From 78 weeks on he gave evidence of a shyness that was apparently a bid for attention, for he coyly hid his head and peeked at the examiners through the crook of his arm or spread his fingers over his eyes and peeked through them and smirked.

At 33 weeks, his mother reported he feared a "mamma" doll; at 35 and 36 he feared rustling paper and phonograph music, although he liked the phonograph better than the radio at 49 weeks. She reported that at 43 weeks he had no fears, but that at 55 he appeared "timid" at the sight of soft fur, touching it gently and then examining his hand.

Intellectual behavior. — A large comprehension vocabulary was reported by the mother during the last part of his first year. At 62 weeks she said he seemed to

remember things, and by 78 weeks he was taking off his clothes when his mother turned on the water for his bath. He was eager and alert in his intellectual behavior and usually performed quite well in the test situation.

JAMES DALTON. *Manipulation.* — In marked contrast to Harvey's vigorous banging was Jimmy's touching and fingering of objects. The word "gentle" and the note that he was absorbed in his experimental manipulation appear on more than one of the cards describing his incidental reactions. Once he gently hit two of the dangling toys together, apparently enjoying the slight click they made. He chewed objects a great deal.

Social reactions. — Most of his social reactions involved touching or gently playing with the doctor's dress, face, or hair. He was always interested in persons; at 30 weeks he paid more attention to the examiners than to their toys. He was very friendly with adults, and took much interest in his brother, eighteen months older than he. Late in his second year a few items of behavior were classified as imitative. One day he found an old olive oil bottle around the house and pretended to grease his toes. At 100 and 104 weeks he used the stethoscope and the blood pressure apparatus as B did and thumped his chest after she had done the percussion.

Emotional responses. — The placidity of this baby is well illustrated by his low irritability scores. On only one occasion (at 86 weeks) did he exhibit the least shyness. His mother reported his fear of a toy sailboat and fear of water on visits to the lake at 86 and 94 weeks.

Intellectual behavior. — Several items of self help were recorded by his mother, such as putting down the tray on his nursery chair (48 weeks), helping to remove his clothes for measuring (88 weeks), feeding himself (86),

wiping up his puddle (90), brushing his teeth (98), and turning lights on and off (104).

IRENE MAY. *Manipulation*. — The manipulation of this baby was neither spectacular nor skillful. Her fine motor play was gentle, somewhat passive, and non-exploratory.

Social reactions. — She was more friendly with adults than with children; as she was a first baby she seldom saw other children, but she gradually became interested in them late in the first year. With her parents she played many cooperative games, and by the age of 28 weeks she was paying marked attention to their facial expressions. Most of her social reactions to the examiners consisted in gentle exploration of B's face or manipulation of her hands and hair.

Intellectual behavior. — She knew the meaning of several words by 52 weeks. Because of the departure of her family from the city in the middle of her second year her record of speech and intellectual behavior is incomplete.

LARRY. *Manipulation*. — The term "gentle" describes Larry's manipulation also. At 25 weeks the examiner noted "very advanced and gentle manipulation, apparently exploratory. No banging or chewing of objects." Fingering, pointing, and touching are the types of reaction recorded. At 30 weeks he pounced on the toys eagerly and held them only a few moments. His enjoyment of musical noises was demonstrated at 19 weeks by his repeatedly pulling the calipers apart and pushing them together with a click, and by his mother's notes: "Beats together two wooden objects and apparently enjoys the noise" (38 weeks); "Likes to pull all the pans out of the cabinet and bang them together" (51); and "Sways shoulders and head to a jazz tune"

(66). Repeated examples of his singing vocalizations also seem indicative of an interest in music.

Social reactions. — The fact that he lived in a household with his parents, two grandparents, two siblings, two cousins, and a maid probably accounts for his equal interest in children and adults. He was always smilingly cooperative at the tests, but the number of incidental social reactions recorded for him is small.

Emotional responses. — His only expressions of displeasure at the anthropometric measurements came at 80 and 84 weeks, when he gritted his teeth and fussed slightly, shielding his face, attempting to push aside the calipers, and objecting "no, no," though chuckles accompanied these protestations. His mother's only record of timidity was the note at 25 weeks, "Looks at stranger gravely, then smiles."

Intellectual behavior. — His interest in the tests was expressed by excited waving and kicking and at 82 weeks by clapping his hands at one of his successful reactions. His mother's report of his neatness and orderliness was confirmed by two incidental items recorded by the examiner. Twice he stopped in his play to turn down and smooth into place the corner of a rug that he had turned up in his play.

MARTIN. *Manipulation.* — Martin played with instruments contentedly enough as long as he was undressed for the physical and anthropometric examinations, but when it came to sitting still and manipulating simple toys at the psychological examinations he quite literally balked and bucked. When he did sit still he often stared in great boredom and merely held the toys passively or dropped them. His interests lay in vigorous physical exertion rather than in exploratory manipulation.

Social reactions. — His mother reported that in early babyhood he liked all children at first sight but that he sometimes “studied” strange adults before going to their arms. His cooperative play consisted in getting his elders to bounce, lift, and swing him or to allow him to “shinny” up their legs or use them as trapeze for his many motor stunts.

Emotional responses. — Martin was a cheerful, happy child as long as he was untrammelled in his motor play. The only indications of fright recorded for him were his crying at 13 weeks when B dropped his rattle on his chest and occasional cries of fear or displeasure at being measured on the board. At 32 weeks and thereafter throughout the two years he was ticklish and squealed and laughed when B measured in the region of his ribs.

Intellectual behavior. — His intellectual reactions were markedly influenced by his motor interests. Escaping from the test situation to indulge in more active pursuits naturally reduced his test scores. Not until he was almost 2 years old did he become really absorbed in constructive manipulation of blocks, form board, and other toys.

MATTHEW. *Manipulation.* — Like Martin, Matthew was a very active baby whose fingers were always busy during the measurements, at least on all occasions when he was not irritable. He was seldom bored at the psychological tests, however, for he delighted in taking things apart in an exploratory fashion. His activity and his interest in mechanics have continued and increased as he has grown older. After his mental examination at 3 1/2 years the tester reported, “I certainly had to test him on the fly. He was all over the office all the time. About the radiator he asked, ‘Where do they put the water in? Is it hot?’ And a dozen more like that. He

chased around fooling with the door knob and the radiator pipes and got into the desk drawers. He was very much interested in all the electrical and mechanical devices, such as the tapping apparatus and reaction-time board. And he kept on asking, 'Where is that machine that goes up and down?' I hadn't the faintest idea what he wanted and asked his mother; she said he meant Dr. Boyd's blood pressure machine." His mother also often mentioned his interest in mechanical devices, and she got him at the age of 4 to talk about his father's drills and other engineering tools which he used as play-things when his father left them at home.

His interest in music and his delight in having the victrola or the piano played have been mentioned elsewhere.

Social reactions. — Only a few social reactions were recorded for him. He did an average amount of patting and hair-pulling when he was being measured. Frequently he brought the toys presented by the examiners for his mother to admire. He was very fond of his sister, three years older, and always smiled at her and at other children. From 14 weeks till the end of the first year he whimpered or was sober when strange adults were present.

Emotional responses. — Outbursts of temper were not infrequent at the examinations. At 11 weeks the note was made that he seemed afraid of the calipers, although pictures at 16 weeks show him playing with them with smiles of pleasure. He was perhaps more sensitive to touch than some children, for from 12 to 52 weeks he kicked the doctor's hand or fussed when she stroked his foot for the Babinski reflex, and at 44 weeks, according to his mother, he disliked the tickling of grass on his bare feet. In the second year he objected so very

strenuously to the measurements that they were discontinued for a time. Other tantrums occurred upon slight provocation at the psychological examinations.

Intellectual behavior. — Activity and irritability often wrought havoc with his test records. He was always interested in the toys, however, and usually took them and manipulated them in his own way even if he did not meet the demands of the test.

QUENTIN. *Manipulation.* — Excited breathing in anticipation, slight trembling unsteadiness, very gentle manipulation, and much holding and chewing of objects marked Quentin's responses to objects.

Social reactions. — Although he exceeded most of the babies in the amount of visual attention he paid to the examiners, he had few social responses other than watching. He played cooperatively with his brother now and then, but he seldom did this in the examiner's presence and his mother made no note of it. Between 78 and 104 weeks six items classified as imitation were noted, five of them on imitative greasing of his toes and the sixth on measuring with calipers and tape.

Emotional responses. — His high irritability in the early weeks seemed to be occasioned by fear or timidity rather than by ill temper. During most of the first year and until the middle of the second year he was, however, friendly with the examiners. After that he leaned on his mother's shoulder, ran after his grandmother when she left the room, had to sit on her lap during the psychological test, screamed as if frightened at the measurements, and altogether made it necessary for the examiners to spend some time in getting reacquainted and to proceed with great caution during the examinations. That sensitivity to touch did not account for his dislike of the measurements is evident from the fact that he

laughed and chuckled even during the ticklish measurements.

Intellectual behavior. — Few bits of intellectual behavior other than those in response to the tests were recorded for this baby. His attitude at the examinations was one of interest and cooperation but not of great acumen.

VIRGINIA RUTH. *Manipulation.* — The number of incidental reactions recorded for this child was small in every category. Those of manipulation showed no marked individuality except that she was much interested in opening and closing boxes. In her third year she was interested in drawing and at 4 years old she did very well in a tracing test.

Social reactions. — Her liking for persons was on the whole limited to her family. During the first year her mother made frequent notes of her delight at seeing members of the family when they returned after a few hours' absence. She had very few reactions of cooperation with either an adult or a child, although she had two older sisters. At nursery school in her fourth year she usually engaged in solitary activities rather than in play with other children. This trait perhaps may be explained in part by her frequent long absences, which prevented her from becoming acquainted with the other children.

Emotional responses. — Virginia Ruth's position as the most irritable child in the group has often been mentioned. Only one of her many fits of crying seemed attributable to fear — the time she screamed when B laughed at her. Perhaps her irritability was partly attributable to her touch-me-not attitude and her great dislike for being handled.

Intellectual behavior. — Lack of cooperation and in-

terest in the tests made for low scores throughout the first two years. Thereafter she made good records on her mental tests and achieved high *IQ*'s.

SIBYL. Manipulation. — This little girl by supreme effort controlled the muscles of her right arm sufficiently to finger and touch B's wrist watch at the early age of 7 weeks. Her manipulative skill was as good as the average or better throughout the entire period, but as she grew older her superiority was better indicated by her speech than by her fine motor coordination.

Social reactions. — From 14 to 34 weeks her mother reported that she liked children better than adults and that she was interested in people. Her two sisters, Charlotte and Becky, six and four years, respectively, older than she, were very fond of playing with her, but since they were often in school during the examiners' visits, few examples of her cooperative play with them were obtained. She cooperated with adults well and was very good at comprehending directions.

Emotional responses. — Sibyl expressed enthusiasm for the psychological examinations by kicking and squealing and by flopping and waving her hands in excitement. Reactions of this type were frequent between the ages of 6 and 9 months. Timidity in the presence of strangers was first recorded at 45 weeks, when her mother wrote: "Fears nothing but people, especially men." At 53, 80, and 94 weeks she expressed fear of the examiners by crying, and at this last age by saying "Fwaid"; and at 98 weeks she said "No" when asked to walk on the paper. From 2 to 4 years she disliked the measuring process but enjoyed the psychological examinations and had a particularly good time when she came to the Institute for mental tests.

Intellectual behavior. — The intellectual ability of this

baby was shown by particularly high scores on the examinations and by very advanced speech. An interesting food habit at 31 weeks was reported by her mother: "Alternates milk, vegetable, and cereal when eating; insists on a taste of one and then one of another; never wants two spoonfuls of the same thing in succession." Although this perhaps is not an intellectual reaction, it does indicate her fine discriminations in tastes, and it illustrates her ability to make her rather complex wishes known at an early age.

MAURICE. *Manipulation.* — Maurice was often bored at the examinations and the number of incidental manipulative reactions recorded for him is small. He was a great chewer of objects, and between 45 and 50 weeks he developed the unusual reaction of picking up toys from the floor with his mouth. Once he opened a box with his teeth. In his second year his habit of escaping from the test and taking the toys to the kitchen for his mother to see prevented him from exhibiting fine motor skill.

Social reactions. — Maurice is one of the few babies with siblings whose mother did not state specifically that he preferred children to adults during the latter part of the first year. She wrote repeatedly, however, "Enjoys having children around; loves to see them; smiles, jumps up and down joyously, and encourages them to stay near by smiling and cooing." Concerning his reactions to adults she recorded, "Happy when he sees one he knows; smiles affectionately at parents and maids and brother and sisters; turns when their names are mentioned" (39 weeks); and "Relaxes when parents or maids hold him. Seems very content; cuddles up to you and enjoys it" (48 weeks). The amount of his co-operative play with either children or adults was small, despite the fact that he lived in a household of three

children and three adults, all of whom paid considerable attention to him. Some of his escape reactions might have been classified in this category, however, for sometimes he ran out of the room as if he expected the examiners to hot foot it in pursuit. Then, too, he sometimes hid the toy in the next room, either in the hope of keeping it — for of all the babies he showed the greatest desire to keep things, once they had been given to him — or in the expectation that the examiner would come to hunt it.

Emotional responses. — The notes “Is the picture of lazy content and spring fever,” “Seems lazy,” “Sighs,” and “Sits and sulks,” were indicators of Maurice’s lack of interest in the tests from 23 to 49 weeks. High irritability scores also indicated his lack of interest. In the second year irritability gave way to escaping. Maurice resembled Virginia Ruth and Matthew in all these reactions. His high irritability was not occasioned by fear or timidity, as Quentin’s was. The only reactions to strangers reported by his mother were her notes: “Was left with strange girl one afternoon. When Mother returned he couldn’t come to her quick enough. Acted as if he had felt he must reconcile himself to the stranger, but was so relieved to see Mother again” (45 weeks); and “Refused to take food from an elderly lady who took charge of him one afternoon” (48). These reactions are hardly indicative of shyness.

Intellectual behavior. — Like Virginia Ruth’s, Maurice’s test scores suffered because of his high scores in irritability and escaping. This lack of cooperation penalized him on his mental tests taken at the Institute at 2 1/2 and 3 1/2 years. When he was 4 1/2, however, the tester said, “I was so pleased with Maurice this time. He has changed a lot; he is such a nice, well-

behaved little boy now. He was very cooperative and interested in the examination, too, and he did much better on his test. I feel that the IQ obtained today is a much better index of his ability than the ones I have obtained before."

TOREY. *Manipulation.* — The large number of Torey's incidental manipulative reactions included few that showed unusual skill or originality except his discovery of how to work the tape. A note at 68 weeks reads: "Pulls out tape and pushes button to make it fly in. Turns tape over to get the right side; thus distinguishes between the button and the screw. Usually pushes with right forefinger; occasionally with his thumb. Did it over and over toward the end of the examination. We did not see him make the discovery." No other baby definitely discovered how the tape worked until a later age. At 66 weeks he had tried to unscrew the jar lid with an oscillating twist back and forth; since he did not let go and take a new hold, he tightened up as much as he unscrewed every time. Insertion of the pocket comb into its case occurred at 70 weeks. These reactions all denoted superior manipulative skill during the period from 1 year to 18 months. This indication was confirmed by his manipulative scores on the tests during the same period; during the first year, however, his motor scores were somewhat below the median.

Social reactions. — Torey's long suit was sociality. Though he was a first baby, he grew excited and pleased at the sight of children. During the first year he was never afraid of adults and went to anyone who stretched out arms to take him, though he preferred people who were standing to those who were sitting. His only asocial record was a slight fuss and hanging of his head when a stranger accompanied S on her visit at 66 weeks.

By shouts and smiles he attempted to draw the examiners' attention; if he failed at this he then played with the toys they presented, but he tried being sociable first.

Emotional responses. — High irritability during the first six weeks of life apparently was due to his difficulty in feeding. When his nutrition was straightened out he became one of the most amiable and eager babies in the group.

Intellectual behavior. — None of his incidental items can be classified as intellectual except the affair of the tape, described above. Absence from the city during the last half year reduced his opportunities for showing an understanding of directions and for using speech.

JUDY. *Manipulation.* — In proportion to her large amount of social behavior Judy indulged in little incidental manipulation, and it was not strikingly individualistic.

Social reactions. — She was extremely sociable, however. Most of her social reactions were classified as cooperation with adults, but she was fond of her sister Madelyn, four years older than she, and often played cooperatively with her. As early as 22 weeks she gurgled at S, seemingly to get her attention. This simple drawing of an adult's attention grew into gurgling and calling and holding out toys to S or her mother at 37 weeks; at 41 weeks she improved this technique by saying "See, see!" when she proffered the toys, and "Oah, oah!" to B, who had moved away from her, until B came back and sat beside her. A note at 66 weeks reads, "Points to table on which doll is lying out of her reach and calls 'Mamma, dear,' very clearly wanting her mother to get her the toys that B has taken from her." From 76 weeks on she gave excellent cooperation during the measurements, holding out her hand and turning her

face and body as B directed. Several items were classified as imitative. The most amusing one was contributed by her mother when she was 68 weeks old. "A few days ago Judy got hold of the small bulb syringe with which I have given her enemas," she reported. "I found her playing with it and her doll, inserting the nozzle into a hole in the back of the doll's rompers." Other acts of her elders that she copied were putting the stethoscope in her ears, drawing on her chest after B had traced her costal angle, and saying, "i, ee, i, ee, ah" when Madelyn repeated her A B C's.

Emotional responses. — Always eager and cooperative at the examinations, she showed no unfriendliness or fear of people. Late in the first year she sometimes stiffened and trembled slightly from excitement when new toys were handed her. At 90 weeks, when her mother was away for a month's trip, she called out for her only when she first awakened in the morning, her father reported; but when her mother descended from the train she stiffened, wriggled out of her father's arms, and crying "Muddie, Muddie, Muddie," ran to her mother.

Intellectual behavior. — Judy's high cooperation and great sociality enabled her to do well on the psychological examinations. She, like Don and Sibyl, expressed enthusiasm and interest by flopping her hands. She understood speech well, complied with commands and requests, and exceeded all except Sibyl in talkativeness. These two were almost equal in use of language.

PETER. *Manipulation.* — Such repeated notations between 30 and 50 weeks as "Lazy acting," "Lazy; no manipulation," "Not much attention, acts lazy throughout," "Slow manipulation, very deliberate handling of objects," and "Squirms on B's lap" were indicative of



PLATE 2. — YOUNG SOCIAL BEINGS AT 43 WEEKS

Upper left. — Fred (right) makes Peter's acquaintance by pulling his hair. *Center.* — Peter and Fred indulgently watch Mother fondle Winnie. *Lower right.* — Max (right) aggressively takes the bell from Quentin.

Peter's boredom and lack of interest. A picture of him at 33 weeks shows him slumped down in his high chair and staring glumly at the examiners (Plate 1). Between 70 and 79 weeks he showed no interest in playing with B but walked away with the toys and sat down in a corner to play with them. At 79 weeks he cried when B took the toys away from him.

Social reactions. — Peter, like Fred, had a twin sister, and most of his incidental social reactions were classified as cooperative play with a child. Notations at 45 weeks read: "Holds out box to Patty and talks at her in goos and aahs aimed to call her attention; watches Patty, who is putting one hand over her eye as if playing peek at her mother; creeps and reaches for Patty's toy." At 46 weeks we find "Attention to Patty; babbles alternately with her." "After 30 seconds abandons toy on chair to look for Patty. Holds bell and rings it. Patty crawls after bell also; Peter bangs her on head with it and she withdraws. Watches Patty, who has soap box which she shakes and bangs whenever he shakes his box. Reaches for Patty. Watches B move Patty away so that she will not interfere. Abandons his box and creeps to radio where Patty sits. When he gets to her Patty creeps away." This lengthy description was recorded at 49 weeks. The mother reported that at 68 weeks Peter teased his older sister, Molly Sue. His sympathy with and love for Patty was expressed at 80 weeks by crying when Patty cried at the measurements. At 2 1/2 years, according to the mother's report, he always referred to Patty as "Honey." At a large picnic party about this time the pair were naturally the center of much attention. Each time Patty strayed a few feet from his side Peter ran after her and took her by the hand. Adoration and unflag-

ging devotion were the terms in which his mother described his affection for this twin.

With adults he was always pleasant and friendly and never showed signs of fear.

Emotional responses. — Boredom with the tests did not mean lack of affability on Peter's part. He was the most smiling baby of the lot. Indeed, his father once humorously remarked that he thought Peter must be "dumb" because he smiled indiscriminately at everyone and everything. He was not apprehensive of strangers. His fears were limited to machines and animals. His mother made the note from 33 to 40 weeks, "Afraid when vacuum cleaner is running"; at 42, 49, and 50 weeks, "Afraid of a dog"; and at 70 weeks, "Afraid at riding in car. Crawls into corner of seat on all fours and stays there all the time the family is out." On occasion he showed temper, particularly when his feet were greased for walking at 79 weeks.

Intellectual behavior. — None of his incidental items were put into this category. Lack of interest gave him rather low scores on the tests. His father's laughing prediction was not confirmed, however, by the mental examinations given him by the Institute examiner in his third and fourth years.

PATTY. *Manipulation.* — The lazy fingering and banging of objects that accompanied boredom was present in Patty's manipulation also. "Less attention to objects than while Peter was being examined; banging preceded fatigue at end of test" (29 weeks); "Seems to look at examiners for approval; cries suddenly as if bored" (31); and "Almost no attention and no manipulation; acts lazy but looks intently at toys when she does pay attention and examines objects carefully when she takes them, but attention is not sustained.

Always starts each test the same way — right holding front of high chair tray and left taking the object farthest left" (46). These are illustrations of her manipulative performance. Interest in the shadows on her chair tray also appeared in this interval.

Social reactions. — Patty did not reciprocate Peter's interest. Instead she directed most of her social responses to adults. From early infancy she was "rather spoiled," to use her mother's expression, for she insisted on being held in her mother's or the maid's arms a great part of the time. Usually the mother had to hold her to keep her peaceful while Peter was being tested; sometimes she screamed when B put her down to take Peter, and at 66, 70, and 107 weeks she climbed up on B's lap and snuggled up to her affectionately. At 74 weeks she was momentarily bashful. Between 7 and 9 months her own reflection in the mirror delighted her; enraptured, she would lean over and kiss the mirror baby.

The only notes on her responses to her faithful brother concerned her interest in his possessions. The notation on her manipulation at 29 weeks, cited above, is supplemented by: "Maid fed carrots to Peter during Patty's exam. Her eyes followed each spoonful expectantly; then she turned and patted Peter" (31 weeks). "Had a temper tantrum when B put her down and took Peter. B gave things back to her after Peter finished with them but that didn't satisfy her. She wanted the thing Peter had, or rather seemed to want to play with B. Wanted center of the stage. Maid had to take her to the kitchen" (79 weeks). At 2 1/2 years, according to the report of her mother, "If Patty wants some toy that Peter has and he refuses to give it to her she says heartbrokenly, 'Petie, don't you *yuv* [love] me any more?' Whereupon Peter hands it over."

Emotional responses. — Patty was not so amiable as Peter. She threw fits of temper to get her mother or B to hold her, and at the measurements in the second year she screamed and resisted, although she had not been intractable before. Her mother reported fear of dogs for her at the same age as for Peter. She showed no fear of people. At 22, 32, and 49 weeks she screamed as if frightened, but the examiners could not detect the cause.

Intellectual behavior. — Incidental notes on her memory for the place where a toy was hidden and her hunting for objects have been cited elsewhere. Like Peter, Patty's test scores were not outstandingly good during the first two years, but at her mental tests later she performed well.

WALLEY. *Manipulation.* — A large amount of investigative manipulation was recorded in the case of this baby. As early as 24 weeks he seemed surprised that his toys did not always behave in the same way for him. A note at this age reads: "Took bell in right hand, holding it by bell portion; shook it vigorously but it only rattled. Then put it in left hand, holding it by handle, shook it, and it rang; put back in left, held by bell, and shook it; put to left and held by handle, thus it rang. Put it back and forth repeatedly, apparently trying to discover why it wouldn't ring each time, or attempting to make it do so." An almost identical note was made at 30 weeks. At 49 weeks he opened the soap box by dropping it. "He throws other boxes and seems surprised that they do not open, but keeps on trying this method; after several attempts he creeps away and leaves them. One box rolls under radiator and B retrieves it for him. He drops it again and no further mention is made of it, but he simply goes and

looks for it under the radiator." At 86 weeks he straightened the pegs in his hand before putting them in the board and then jammed them in tightly. When he pulled the crosspiece off the straight caliper at 100 weeks, he said "Broken, me fix"; but he was not deft enough to do it, for the operation required a fine adjustment even on the part of an adult. His memory of it extended to 104 weeks, however, for at that age he said "Open, open," as he tried to pull the calipers apart. His manipulation was not unusually skillful and it was neither gentle nor rough, except as exploration is rough.

Social reactions.—From 13 weeks on Walley's mother made frequent notes of his liking for children and of his rapid breathing and tensing to be lifted when adults came near his crib. Walley resembled Don, Torey, and Judy in his great sociality. His apparent realization at 7 weeks that the examiners were strangers is described in Volume II, page 81. Most of his social items were grouped under the headings "Cooperates with child" and "Cooperates with adult." Some examples are: "Puts bell into right hand at B's command" (28 weeks); "Throws rattle three times for B to pick up" (31); "Takes box from B's hand; looks at B and S as if wanting them to open it" (37); "Makes a noise to frighten us and then laughs when it does; does this repeatedly" (43); "Snore three times in imitation of Libby [his sister, 4 years old]. Walley begins it and Libby echoes it, alternating with him. Throws bell for her to pick up" (47); "At B's command, holds out arm to be measured" (at 76 weeks and at every measurement following); "Plays a game with S; they alternately squeeze the blood pressure bulb, S handing it to Walley and he handing it back; each time it is squeezed it

makes a little squeak" (88). He was always delighted with people and never showed timidity.

Emotional responses. — Eagerness, delight, and joy he expressed by tensing, kicking, and waving his hands. He had several items under the heading "Sensitive to touch," and at 92 weeks he began to object to the foot greasing, the Babinski reflex, and measurements of the feet. He said "Don't" and "No," and squirmed down off B's lap to get away from the tickling stimulation. His mother told of his unhappiness at 94 weeks when she went away for a week's trip, leaving him at home. Each time the door opened during her absence Walley ran to it, calling "Margie, Margie" (his mother's given name). This is the only reference to dislike of being left behind.

Intellectual behavior. — Keen interest, intelligent compliance, and early understanding and acquisition of speech marked this baby as one of the most intelligent in the group. He moved from the city when 2 1/2 years old, but his yearly mental test and speech records obtained when his family returned for visits substantiated the early prognosis.

SUMMARY

The patterns of personality indicated by reactions to the psychological examinations are fairly well corroborated by the incidental behavior when the latter is treated in quantitative terms. Descriptions of characteristic bits of behavior make each baby's personality stand out more clearly than it would have done on the basis of the tests alone. Although quantitative treatment of personality data is invaluable, qualitative and descriptive accounts are easier for the reader to grasp and thus are equally important.

CHAPTER V

PERSONALITY AS REVEALED IN SPEECH

Speech is the adult's usual medium for expressing his ideas, opinions, and sentiments; and if he is clever and designing he may use it for concealing as well as for revealing his innermost thoughts and desires. Babies under 2 years, however, obviously do not have the language tool well in hand. Since their vocabulary is too fragmentary to enable them to express themselves adequately in words, they express most of their ideas immediately and directly by action. Consequently one does not expect the 2-year-old's personality to be presented as adequately by a record of his speech as an older child's or an adult's might be. On the other hand, the baby has not built up inhibitions against expressing any idea that may occur to him; his flow of speech is untrammelled by convention and unlikely to conceal his personal wants and convictions.

It is possible, too, that slightly different motives stimulate different babies to acquire speech — motives in keeping with their personality traits. The social baby, for example, may coo, babble, and prattle almost constantly because he has discovered that making a pleasant noise is a very effective way of getting an adult's attention. Babies whose chief delight is in gross muscular activity may find words relatively unessential because they express themselves so freely in deeds. Independent babies who seem to dislike being handled,

loved, and petted, and to prefer to do things for themselves, perhaps will have little need for communication. Babies who are curious and intellectually interested in the doings of others are likely to find speech a useful tool for finding out the things they want to know. To be sure, the baby under 2 years does not recognize nor consciously formulate his motive, but it is likely that the words he first acquires are those best suited to serve his own ends. Hence it may be possible to discover his motives by analyzing the amount and content of his speech. One would expect, *a priori*, that the social baby would be very vocal, regardless of whether his jabbering had meaning; on the other hand, if the speech of the active and independent baby expressed his personality, it probably would be laconic; and we should expect the speech of the baby whose interests were intellectual to be bristling with questions and information.

In the preceding chapters the author has attempted to make it clear that although no baby could be said to represent a definite type, each manifested one or more traits that apparently were the strong driving forces in his behavior. These appeared consistently both in the baby's reactions to the psychological examinations and in his incidental behavior. It is important to know whether the same characteristic traits were revealed by his speech.

THE SPEECH RECORDS

The method of obtaining speech records between the ages of 1 and 2 years has been described in detail in Volume II, Chapter XII. At six-month intervals between the ages of 2 and 4 the examiner obtained a fifty-sentence record of each child's conversation after the

manner of McCarthy (11). In the test a small suitcase containing duplicates of the toys used by McCarthy was offered to the child and he was told, "There are some things in here that you might like to see." The value of McCarthy's half dozen simple toys as stimulus material waned after the second or third presentation, for the children remembered the objects and lost interest in them. Since the author was more interested in obtaining spontaneous speech than in duplicating McCarthy's technique, she did not try to center the child's attention on the toys but encouraged him to converse with her freely on whatever subject he brought up. Sometimes the child brought his own toys to show her or asked her to come with him to his play room. She followed where he led, recording his speech as she went. In order to keep the situation as natural as possible she evinced interest in his play, made a conscious effort to understand what he was talking about, and attempted to answer his remarks to her in the same conversational way that she would have answered an adult.

Immediately after the interview the records were read over, the brief marginal notes on the child's activities were amplified to make them more explanatory, and the average length of sentences was computed. Subsequently the sentences were analyzed functionally according to McCarthy's classifications.

Tables VI and VII give the data from all the speech records of individual children. These tables yield some information on constancy and change in the children's speech from birth to 4 years, but the pattern can best be described by excerpts from their conversations.

Developmental change in speech. — The most important change in the nature of the child's speech is, of course, that his incomprehensible utterances gradually

TABLE VI
AVERAGE AMOUNTS OF VOCALIZATION PER VISIT

BABY	ALL UTTERANCES*		INCOMPREHENSIBLE UTTERANCES*		COMPREHENSIBLE WORDS†		COMPREHENSIBLE PHRASES‡		COMPREHENSIBLE SENTENCES‡		VOCABULARY*
	Total	Different	Total	Different	Total	Different	Total	Different	Total	Different	
Winifred.....	3.3	2.1	1.8	.9	3.8	3.1	.1	.1	.1	.1	29
Frederick.....	9.6	3.9	4.9	1.7	8.9	5.4	.8	.8	1.7	1.1	53
Carol.....	3.5	1.4	2.0	.9	1.4	.8	0	0	0	0	8
David.....	9.5	3.4	1.3	.8	20.7	5.3	.2	.2	5.7	1.2	38
Donovan.....	4.9	2.1	1.9	1.3	.6	.3	0	0	0	0	6
Harvey.....	4.6	2.0	2.8	1.3	2.7	1.5	0	0	0	0	25
James D.....	2.2	1.4	1.4	.8	1.3	1.0	.2	.2	.2	.2	19
Lawrence.....	7.7	3.9	3.0	1.9	9.9	4.3	.2	.1	.5	.3	51
Matthew.....	3.8	1.8	1.6	.9	2.5	1.6	0	0	0	0	23
Martin.....	6.4	2.8	2.5	1.1	7.7	3.5	.2	.2	2.0	.9	37
Quentin.....	2.4	1.4	1.7	.9	.9	.6	.1	.1	.1	.1	9
Virginia Ruth.....	5.9	2.4	3.6	1.6	1.6	1.1	0	0	.2	.2	16
Sibyl.....	10.9	7.0	1.9	1.5	24.8	16.3	4.7	4.1	5.6	4.7	126
Maurice.....	4.3	1.8	2.7	1.4	.9	.7	0	0	0	0	7
Torey.....	5.9	3.0	4.0	2.0	.8	.6	0	0	0	0	8
Judy.....	10.6	5.6	3.8	2.0	13.7	7.5	.8	.6	.2	.2	71
Peter.....	3.2	1.6	1.6	.8	2.8	1.9	...	...	...	...	20
Patricia.....	2.5	1.4	1.2	.8	3.0	2.2	...	...	...	...	22
Walley.....	9.7	5.6	3.2	2.0	12.9	8.5	1.2	.9	.5	.5	104

* Based on records from birth to 104 weeks.

† Based on records from 54 to 104 weeks.

‡ Based on records from 78 to 104 weeks.

TABLE VII
FUNCTIONAL CLASSIFICATION OF CHILDREN'S SPEECH FROM 2 TO 4 YEARS
(Percentage of 50 Sentences)

BABY	NAMING				REMARKS ABOUT THE IMMEDIATE SITUATION				QUESTIONS				DRAMATIC IMITATIONS			
	Age in Years				Age in Years				Age in Years				Age in Years			
	2	2½	3	3½	4	2	2½	3	3½	4	2	2½	3	3½	4	4
Winifred.....	16	..	24	12	18	14	..	28	44	46	..	..	2	8	12	8
Frederick.....	18	..	20	0	2	14	..	28	48	62	8	..	20	2	12	12
Carol.....	8	..	..	10	12	12	..	..	32	54	0	..	..	4	4	0
David.....	38	22	24	14	2	18	62	38	46	52	28	6	36	14	34	0
Donovan.....	4	8	12	4	8	4	14	56	56	62	2	16	4	20	6	0
Harvey.....	30	0	4	2	..	2	56	48	56	..	12	0	20	20	..	16
James D.....	2	12	30	12	8	2	12	36	48	44	0	2	0	4	22	..
Larry.....	66	32	32	16	..	0	30	40	34	..	0	14	24	26	..	0
Matthew.....	..	26	..	10	2	..	18	..	26	44	..	24	..	16	30	0
Martin.....	6	26	38	16	16	0	18	20	34	48	0	24	18	26	26	0
Quentin.....	28	44	4	2	8	10	18	56	34	70	0	4	0	2	2	2
Virginia Ruth...	12	..	2	12	0	10	..	60	42	68	0	..	6	26	10	0
Sibyl.....	38	24	34	10	0	30	32	30	72	40	4	16	0	6	4	0
Maurice.....	2	..	12	10	0	4	..	4	46	46	2	..	10	4	30	0
Torey.....	6	44	26	30	0	6	6	42	20	34	0	4	10	16	0	0
Judy.....	64	44	24	12	10	18	42	42	46	30	8	4	12	26	20	4
Peter.....	..	18	20	0	2	..	44	60	60	68	..	14	0	22	14	0
Patty.....	..	34	26	12	20	..	34	44	48	54	..	10	4	14	22	0
Walley.....	32	8	6	..	6	32	40	48	..	50	4	54	8	..	6	..

give way to intelligible words. A less obvious fact is that the number of repetitions of the same syllable, word, or phrase decreases with age. Throughout the first year a large percentage of the baby's babbling consists in repetition of the same syllable or group of syllables. When he begins to use words meaningfully, however, he repeats them frequently but less often than he repeated his early jargon. Hence, as will be seen from Table VI, the number of different words more closely approaches the total number of words. As one would expect, phrases and sentences are less often repeated than are words; almost all the phrases and sentences recorded were different. David was a notable exception to this rule, for a reason that will be pointed out later. The vocabulary of the babies under 2 years has been discussed in Volume II, Chapter XIII.

On the speech tests from 2 to 4 years all the babies showed the main developmental trends found by McCarthy. Sentence length increased with age for all, although there was an occasional reversal at a single age level. Most of these reversals came during the fourth year; they were due partly, no doubt, to the children's loss of interest in the test, and in one or two cases to a sudden reticence in the presence of the examiner.

The percentage of responses falling under each functional classification also showed a developmental trend similar to that reported by McCarthy. The figures for four of the categories are presented in Table VII. The percentage of incomprehensible responses was highest at 2 years. Those for the naming response were highest at the ages of 2 and 2 1/2. Remarks about the immediate situation made up the bulk of the conversation at 3 1/2 and 4 years. Remarks about objects or events

not actually present but associated with the situation occurred most often at 4 years. Questions and answers showed a less definite upward trend with age, perhaps because the early questions "hunh?" and "what's that?" were given equal weight in the computation of percentages with the more elaborate questions asked at later ages, such as "How do you work this?" and "Where did you buy that telephone?" Similarly, answers varied from grunts that signified "yes" or "no" to "There's some in here, but this is Daddy's paper," which was Virginia Ruth's reply when S asked whether she would like some paper for drawing. Dramatic imitation was rather infrequent and did not show a developmental trend.

The important conclusion to be drawn from these two tables is that in speech as in all other traits every baby adheres closely to the developmental trend. Individual differences are great, but they do not allow any baby to skip over any of the essential stages in language acquisition.

Constancy of speech habits.—Table VI also gives some clues to the constancy of speech habits in the first four years. Sibyl and Judy have high speech records throughout the entire period. James Dalton, Martin, Quentin, Torey, and Maurice are consistently low in speech until the fourth year, at which age they show great improvement over their previous records. In general the talkative babies became talkative children and the quiet babies became silent children. The consistency of the children's speech can best be illustrated by examples.

CONTENT OF THE BABIES' CONVERSATIONS

WINIFRED. — Throughout the first two years Winnie's utterances, both comprehensible and incompre-

hensible, were only about half as numerous as Fred's, but a larger proportion of them were different. At 2, 3, and 3 1/2 years it required exactly twice as long to get fifty sentences from her as from her voluble brother, but the twins differed little in sentence length. In the latter half of the second year 77 per cent of Winnie's speech consisted of naming responses and 18 per cent of remarks about the immediate situation, such as "Nice doll," "All done," "Go way, Freddie." At 2 years she named some of the pictures in the Mother Goose book and had a little dramatic play in which she said "Make dress," "Wash this dress," and rocked the doll in her arms, saying, "Bye, bye, bye. Daddy, baby back home." Since at this age her speech was quite incomprehensible to the examiner her mother had to interpret.

In her test at 3 years she named the pictures in the animal book and then began to play with the toy telephone, saying, "I'm going to order cookies." When encouraged by her mother and S to talk over the telephone she said, "I want to talk. . . . I not going to talk to anybody. I not going to order any groceries. I had the wrong number." Holding the toy out to her mother she said, "Telephone somebody. I going to call up Mr. Lawrence" (a family friend). "No, I call up Natalie" (a baby daughter of one of her mother's friends). Then she played with the other toys, but she came back to the telephone and spoke five other sentences in which she talked about calling someone but did not carry on an imaginary conversation.

At 3 1/2 her conversation began with "I have a little pickaninny book. And Fred has another. Mine was a little story book." Pictures of lambs in the book brought out "We didn't see any lambs at the zoo,

did we, Mother?" Then she asked for a pencil and paper and said "Put this down. Put two books under it. Look at that little one sticking out. Lay it down the other way." When she had the paper nicely fixed she scribbled and said, "I just wrote a little bit, and put a 'Win.' I'm going to write another letter. I'm writing about babies. Look at that long letter." S then wrote her name on the paper and her mother asked her the letters. "It's an *i* and a *w* and an *n*. Isn't that a funny *i* she made?" She then turned to other toys, about which she commented and asked questions. "One time Daddy had a 'cordion. A real one. Yes, he could play it. It didn't have these many things [keys] on it."

At 4 years about half her sentences consisted of naming and commenting on the pictures in the books and on the other toys. Then, taking the telephone, she said, "The grocery." S, entering into the play, said, "Hello, this is the grocery." "I want some meat." "How much?" S asked. "Nine pounds." "Who is this for?" "Thompsons." After a few more comments on the toys she and Fred began to draw. "Freddie's very good, isn't he? How'd Freddie make those?"

At all ages her speech was more comprehensible than Fred's. The naming response and informational sentences about the toys predominated. At 3 years she could not bring herself to make a dramatic telephone conversation in the examiner's presence, although she and Fred were great pretenders in their everyday play; but at 4 she apparently enjoyed S's entrance into her dramatic play. Her speech was compatible with her thoughtful, matter-of-fact attitude and with her social reticence.

WILLIAM FREDERICK. — During his first two years Fred's propensity for jabbering led to frequent repeti-

tions of the same syllables. Between 78 and 104 weeks 70 per cent of his comprehensible speech was made up of naming responses. In the examination at 102 weeks he used the telephone for dramatic play, saying, "Daddy, he'o. Talk Daddy. Dat all?" Again at 105 weeks he said, "Daddy dere [there]? Doo-bye Daddy. Dack-Phil dere? Is Shish [Sister] dere? Doo-bye Daddy." The remainder of his conversation consisted of naming the toys, calling his mother's attention to the pictures with "'Ook dis, Mam. Whas dis, Mam? 'Ook dis oth' book, Mam," and ordering Winnie about: "No, F'eddie do. Mam, let F'eddie do" (play the toy accordion), and "My truck." Whereupon he took the toys he wanted from his sister.

Half his conversation at 3 years was stimulated by the animal pictures. To the dogs he said, "Dis look like Blackey. Dis look like Penny. Dis look like Happy. Dis look like Noodles." These were the names of their own and the neighbors' dogs. "Dis yams [lambs]? Deese, ducks, and woosters. Look at dese buppies." Then he took the telephone and said, "I want order marshmallows. I going talk about McCoy's [the family grocer]. This is McCoy's. How do you buy? I want some brown crackers and white crackers and some marshmallows and Rice Crispies and Grape Nuts and some coffee." The rest of his sentences were comments and questions about the toys. Though his speech was more comprehensible than at 2 years, his mother still interpreted most of his remarks.

At 3 1/2 he began to telephone at his fifth sentence. "Hello." S said, "Who is this talking?" "It's Macaroni. Say this man is Macaroni." "Well, Mr. Macaroni," said S, entering into the spirit of his game, "how is Mr. Spinach?" "Well, how is the spinach?" Fred repeated,

chuckling. "It's pretty well. Now I'll call up someone else. Hello, is this Fordy's? This is somebody else. It's Jam. It's the grocery man. It's the order man. It's McCoy's. Hello. Well, McCoy, give me some lunch. Now I'm all through." "I'll call up somebody again," giggling. "It's going to be Eddie. Hello, is this the gigolo? This is the eye of Eddie. And this is the nose of Eddie. But this is the mouth of Eddie." Then followed a snatch from a popular song, "'Just a Gigolo. Everywhere I go' — my little dog follows me," he improvised. "I want to write now. I'll call up the pencil man. Hello, is this the pencil man? No, it isn't. Hello, is this the pencil man? Yes, it is. I want three pencils." The remaining sentences were about writing. His dramatic telephone conversation was carried on with great glee. He was deliberately "fooling"; he laughed loudly at his jokes and watched S to see what kind of impression they made on her. After his fifty sentences were recorded he looked at the animal pictures and named each, adding rhymes. "Goose and loose and woose; horsey and borsey and worsey; and dogs and wogs and hogs; and lambs and rams and dams; and pigs and wigs and digs; and chicken and wicken and bicken."

The family grocer received another order from Fred at 4 years. "Hello, this is Mr. Thompson. I need some cheese and a goose to feed all the family. Some geese and a chicken and some eggs. All right, good-bye." But his new birthday toy, a steam shovel, absorbed most of his attention at this examination. He tried to explain to S how it worked. "Well, you see it goes that way. When you wind it up it goes backward. This go backward. That go frontwards. And then you see you got to wind it. Sometimes it breaks. See now it's

lodged." Finally he said to his mother, "I want to go outdoors and show Mary Shirley how to work this thing."

Unlike Winnie, Fred dramatized freely and introduced incongruities into his conversations, apparently hoping to amuse or "shock" his listeners. Thus social interests motivated his speech at the examinations from 2 to 3 1/2 years. Expository speech in explaining a mechanical toy was greatest at 4 years.

PETER. — Because of their absence from the city during the last part of the second year Peter's and Patty's early speech records were too fragmentary for analysis. At 2 1/2 years Peter played with the toy automobile throughout the test and talked about it very rapidly in sentences that were mostly incomprehensible. He began, "Honey ha' ball. Honey ha' ball!" (Honey was his name for Patty.) "Daddy ha' car, Daddy ha' car. Honey ha' car, Honey ha' car. . . . Wan'ah [wonder] what's this? Here my make. See my make" (showing S his drawing). "Write on car." He said almost every sentence twice.

Repetitions of this kind also characterized his record at 3 years. "I have the ball. I throw the ball. . . . A kitty, a kitty. A phone, a phone. I going to put the phone right here. I going to put the phone by kitty. . . . Oh, I throw it under davenport. Oh, I roll it under davenport. I want that car. I want that car." (This was directed to Patty, who had taken the toy automobile.) "It can't go far. It can't go far. I want that car." Patty said "No!" "I going to grab it. I going to take it." With this fair warning he did grab the car, and played with it, putting it on the back of the toy cat. "It's up on the kitty. It's going to be on her ear. It can't go fast. The kitty can't go fast. It can't go far. Honey got a book." (Patty had consoled herself for

the loss of the car with a picture book.) His speech was rapid and comprehensible. Most of his conversation was addressed to Patty rather than to the examiner.

At 3 1/2 he started to play with the telephone. S asked whom he was calling. "I won't tell yah," he said. After several comments on the toys he came out with "I'm not going to umbum in my pants any more." S murmured an appropriate word of commendation at his confidential and serious resolve. "Only one time I did. But Mom didn't spank me. She just washed it" — and apparently with a few words of chastisement "Mom" had succeeded in making him truly sorry. After a few more comments about the toys, during which he asked for pencil and paper to write a letter, he asked, "Have you a little boy at home? Why don't you buy one? . . . Who do these toys belong to?" S said, "They are mine." "This telephone belong to you? Do ladies talk on it?" Apparently the possession of toys by a grown lady did not check with his previous experience and this prompted his question about S's home life.

At 4 he was not interested in S's toys but he and Patty took her on a tour of the basement where their own toys were kept, and he explained where this and that plaything had come from.

PATTY. — At 2 1/2 Patty's conversation was limited to the picture book. She would name a picture and then remark upon various things about it, particularly the clothes. "Oh, doggie, doggie, bear. Eyes. Nose. . . . All got sippers [slippers] on. Her's got orange sippers on. Oh, there what a cute. A cute doggie. . . . Wook, wook at dat nice doggie. . . . He's got beads on" (dog wearing a collar). . . . "Her's got sippers on; got hat on." She asked for paper and pencil and did a page of scribbling.

At 3 she again named the pictures. She then turned her attention to S's writing and said, "When I'm big like you I can make that. When I'm big like you — I'm not big like you now. That's why I can't make that. I want a paper to write on. I want a pencil too! Now look what I made." She displayed a long line. "Its a stem. I'm going to make a man." At this point she picked a microscopic bit of dirt off her dress, saying, "I don't want this thing on my dress," and then held out her dress for her mother's inspection, "Mamma, look, this not dirty." After a little more work on the "wetter" she was writing, she overheard her mother say, "Molly Sue, I must take you to the barber." "Mamma," she piped up, "take me over to barber shop and get my hair cut."

The toys interested her most at 3 1/2 years. After some remarks about the car she began a telephone conversation. S asked with whom she was talking. "I going to talk to you. Hello, good-bye. Good-bye, dog," she said mischievously. "I'm not a dog," S remonstrated. "I was just kidding you," Patty replied. Like Fred, she enjoyed "pulling a fast one." Again she asked for pencil and paper and after drawing a few strokes asked S to draw her a dog. "Big dog bite me, bite you," she joked. At 4 her entire conversation was about the pictures and toys, and she talked in a low voice.

Her interest in wearing apparel and particularly in her own appearance, her fondness for writing and drawing and for doing as grown-ups do, and her joking and teasing made Patty's speech very different from Peter's. That in the four records she referred to him only once is objective verbal evidence that Peter figured less prominently in her life than she in his.

Each member of the two sets of twins partly revealed his attitude toward his twin in his speech. Winifred and Peter expressed their admiring devotion; Fred and Patty played up to the examiner and temporarily neglected their twins.

CAROL. — Carol was not a voluble baby. Up to 78 weeks her incomprehensible utterances were somewhat below the median and her comprehensible utterances did not go beyond "dere," "here," "bottle," "all right," "mamma," "well," and "me." After that, on account of a long siege of illness, no more records were obtained up to 104 weeks. At this age 58 per cent of her utterances were incomprehensible and most of the rest were naming responses and "meows" in imitation of a cat and "hellos" over the telephone. Ages 2 1/2 and 3 were skipped. At 3 1/2 she gave fifty comprehensible sentences in 12 minutes and her sentence length averaged 5.2 words, which was above the median. Much of this conversation was addressed to Benny. "Lookit, Benny. Let me try it once. It's my turn. . . . Do like this, Benny, then catch it. Put your foot over, Benny." (These were instructions for the bouncing ball game "O'Leary.") "Hey, Benny, the car goes in the suitcase." She made other long comments on the toys. "What a funny way to put a telephone up. . . . I want to look at the pictures, the pictures. . . . Bet I know what's in here. Pencils. Do you know what I said to the gas meter man? I said 'Ah.' . . . I'm going to play O'Yeahy. You have to play O'Yeahy outside. I think I'll play O'Yeahy outside. Oh, darn it, darn it anyway. It's raining!"

At 4 years she commented on the toys. "We've got one of these things, but it hasn't got this in it." Since she was little interested in the toys she invited S to her

play room to see her things. "I had my birthday and I'm 4 years old now. Do you know what Granny Ruger gave me? Don't know where it is. Oh, in my baby buggy," and she brought her new doll for S to admire. "Oh, I know what — something to tell you. Take dolly out. Wup, her dress is torn now. Margie have to make another dress" (for the doll). "Want to see the dress Aunt Ida made me? It's a pretty dress, I've worn it already." At this age she also drew Benny into her play, saying, "I'm going to ask Benny to come in. Benny, come on in here." Benny was shyly peeping around the door.

Carol's slight timidity at the examiner's arrival soon wore off and she talked well and rapidly, in informational sentences that were relevant to the situation.

DAVID. — During his second year David was next to the highest in the group in number of comprehensible words and highest in number of sentences, but only one-fourth of the words and one-fifth of the sentences were different. The reason for this large proportion of repetitions was that practically all his sentences were questions. At 66 weeks he said "Wha's 'ah?" (what's that) twenty-two different times, and "Hunh?" twenty-seven times. The "hunh" was said with a rising inflection; the grunt was drawled out in a tone that began around F and glided upward about five tones. At each succeeding age these two questions made up the bulk of the conversation. When the examiners answered his first "Wha's 'ah?" — as they always did, except when his question was a repetition of B's "What's that?" at the picture book test — their answer was invariably followed by one or two "hunh's." And finally he repeated their answer in the same drawling tone of query that he used in the "hunh." Thus the conversa-

tion ran on: "Wha's 'ah?" "A ball." "Hu-u-u-nh?" "It's a ball." "Ba-a-a-l-l?"

His McCarthy tests were usually given on days when he was at nursery school. Questions made up a large part of his responses to these tests. At 2 years: "Wha's that, funny? . . . Hunh? . . . Duckie? Bunny? . . . Shall I? . . . Red car?" — all uttered in his questioning drawl. At 2 1/2 years only six questions were recorded; most of his sentences were naming responses or remarks about the toys. "I going to get the kitty. Miss Shelly [Shirley] got a kitty. Kitty-kitty gets 'cared. Look at the car go. The car goes over ruggie. Going to run over the paper. See dat Dr. Boyd. See dat Dr. Shelly." The "Dr. Boyd" represented a confusion of the names of the two examiners, for B was not present at this test.

At 3, questions again made up a third of his speech. "What's this? That a tennis ball? Hunh? Picture book?" He no longer confined himself to the simple "what" and "hunh" questions, although they were still most frequent. "What's this in here, Dr. Shirley?" This elaboration, which included S's name, he used three times. Other queries were: "Did you hear that? Did you hear that bing? Can I throw this up? Well, where is that big ball?" Even his statements he ended as questions. "See they can tip back, can't they? It jumped on the telephone, didn't it? See I stepped on the box, didn't I? This wheel's broken, isn't it?"

At 3 1/2 he began the interview with "My mother's going to buy new shoes for Gordon and me." But questioning began with a "hunh" in the fifth sentence. "What did you break, this one?" (S had broken her pencil.) "Is there a hole in it? So you are going to use that pencil? This kitty is broken, isn't it. And you got to get a new kitty? Well, I'll buy a new kitty for you,

shall I? And you lost it?" Several of S's remarks he repeated in the questioning tone. Then he began to give information about his 20-month-old brother. At the picture of a dog he volunteered, "Henry says vwoo, vwoo, vwoo every time. . . . Henry wetted his pants yesterday. But I don't. Henry when he gets a big boy is coming to nursery school." After S broke a second pencil he said, "If you write too hard that pencil will break." He sat ringing the telephone, sometimes holding his hand over the bell portion so that the sound was muffled. "Sometimes this ring too hard," he said. S asked him if he knew what made it loud. "Maybe a ringer-man does," was his fanciful explanation; and as he held the receiver to his ear he said, "There aren't any people in it."

At 4 he began his cross-questioning with "Why do you come at school every time?" S said, "To see you." "Just to see me? Why do you come over just to see me?" After other questions that aimed to call S's attention he began to play the toy accordion, saying, "This is the way Miss —— makes a noise. And this is the way Miss —— makes a noise" (naming the nursery school teachers). "Now this is Jack and Jill that they play" (a nursery school song). "And this is the way the telephone makes a noise."

Questioning was still his most characteristic type of speech. Not satisfied with a simple answer, he wanted it affirmed. Whether this questioning was prompted by true curiosity or whether it was chiefly an attention-getting device it is impossible to say.

DON. — In babyhood Don was very vocal, and during his second year he used to talk gibberish to Dr. Boyd in the most conversational tones. He was slow in developing comprehensible speech, however, and at 2

and 2 1/2 years the percentages of incomprehensible utterances at the McCarthy test were 90 and 50, respectively. The questioning grunt, "hunh," and the "hallo" over the telephone were the only things S could understand. At 3 years every sentence was comprehensible and his sentence length was slightly above the median; 64 per cent of his conversation was informational and only 12 per cent consisted of naming objects. Several sentences signified intention: "I see pencils. I take it out. I put them box in. I put the pencils back in. I put my finger there." Holding up the bottle of oil he said, "This put on my toes." The toy automobile elicited much information about cars. "That a too-too, Mamma. I got a too-too car." To S: "I got a big one. Look at my cars. Look, rumble seat in it. Put coal in here, Mamma. Got air in the tires. There's water in there, Mamma" (pointing to radiator in the tiny car).

At 3 1/2 he persistently asked how to ring the telephone bell and spent some time naming the animals in the picture book. He also brought out his own toy truck and took S's toys riding in it, dramatizing: "I take this by a tation [station]. I going to dump Neely's truck and Tony's truck. Where is my Tony truck?" He expressed intention in 34 per cent of his sentences at 4 years. "I playing with the toy. I'm going right over here by the davenport. I play with the ball now. I going to play with it this way. I go like this and it rings, don't it. I going to take the telephone out to the kitchen. I call you up now. I going to do it again. I called my mamma now. My mamma going buy me one down town. I going get some dishes for Christmas and a doll and baby buggy."

He was not at all shy and after comprehensible speech

began was very talkative at each examination. Information and remarks about his possessions or his intended activities made up the bulk of the conversation. He also dramatized to some extent. At each examination he pretended to talk over the telephone and at 3 years he called the grocer and ordered "Beenanows, thank 'oo. Goo'-bye." At 3 years and thereafter he talked so rapidly that it was impossible to get all his sentences.

HARVEY. — During his first two years Harvey stood at about the median in talkativeness. Eighty per cent of his comprehensible words uttered before 2 years were childish imitative words such as "tschootchoo" and "wow-wow," and 50 per cent of his responses were naming. In the McCarthy test at 2 years he named the animal pictures, gave several questioning grunts, and used "up," "now," and "oh" with questioning inflections. He said "eye, eye," pointing first to the eye of the cat in the picture and then to his own, and on finding the key to the suitcase queried, "Key? Door? Ope" (open).

His grandparents from out of the city were caring for him at the time of his examination at 2 1/2 years because his mother was in the hospital. "I ca'ed [called] up Mother over dreat bid telephone," he volunteered, and also, "The 'nother grandma's house is way out to lake." Several of his sentences were exclamations: "Wups diddy," "Wups jyjie," and "Wups hay," as he threw the ball and ran after it. To his grandmother's request, "Count for the ladies," he replied, "I can't say count," although she reported that he could count to 6, and that a few days before, when she had said "There's a light in the basement," he had corrected her with "No, there's two lights!" One day when his grand-

father was trying to give him some medicine he said, "Oh, medicine is just horrid to me. I never use it." The grandfather taught him to say big words. He reported with a chuckle that he had said to the child, "Harvey, say Nebuchadnezzar." Harvey replied, "I can't." "Can't what?" "I can't say Nebuchadnezzar." Sometimes he replied "Oh, horsefeathers!" to such a request, an expression picked up from his high school brother, Ted.

His sentences at 3 years averaged 5.6 words, the longest for any child at this age. He began with the question, "Hey, what is that, Dr. Shirley?" holding up the Hallowe'en cat. "How do you make it go?" S said, "I think you can figure it out for yourself." "I can't figure out. . . . That's just got to figure out." Presently he trotted to the front door, saying "I have to go see if Ted got that door bell fixed. He's not there now. He came in the house and washed his hands." He was puzzled by the toy accordion. "Funny noise it makes. It makes such a funny noise. I just can't understand it. It's all tangled up. Here's a lot of keys I got to shut up. I can't understand that tune." Over the telephone he said, "Just play like I call Daddy. Take autos down to the wreck man and take trucks and take automobiles and he takes everything."

After naming the animals in the picture book at 4 years he took S to his toy cabinet to show her his things. Holding up a paper tube he said, "You look right through it. I see through it on the floor. Do you want to see me put marbles down here?" he asked, and making an inclined tunnel out of the tube he rolled the marbles down through it, scattering them on the floor. Presently his mother came in and he said to her, "They're all scattered." "I see they are," his mother

replied. "Do you like it?" he asked, evidently baiting her to say "No! Harvey, you must clean up this mess," but she only laughed. "Isn't that funny? . . . Hear this rattle? Hey, did you see that?" were exclamatory questions designed to draw S's attention.

From time to time his mother reported that he had picked up adult expressions. At 3 1/2 he prefaced his table talk by the fairy-tale sentence: "Well, sir, once upon a time in a bygone day." His speech was practically all directed toward adults rather than egocentric. At every age he frequently exclaimed "Wups," and "Hey," apparently for the sake of drawing attention to his play.

JAMES DALTON. — Jimmy was rather a quiet baby; he did somewhat less jabbering than the median. Before 2 years he had used 18 words comprehensibly in the examiners' presence. His McCarthy test at 2 years yielded only four comprehensible responses, however: the "unhuh" grunt of consent, "Ah [I] will," and "hah'oh" and "bah-bah" over the telephone. At 2 1/2 years 66 per cent of his sentences were incomprehensible, although most of them apparently had meaning for him. He named some of the animal pictures and said "lah" for yes, and "noah" for no. "Ly lou open ah?" he asked his brother Robert, apparently meaning "Why you open it?"

Only 26 per cent of the speech was incomprehensible at 3 years; 30 per cent of the responses were naming and 36 per cent were informational remarks. "I got bohoom [broken] car. Here mine coal car. Kitty taking ride on coal car. Look the car ride round telephone." At this age he did a lot of humming and imitative grunting to indicate that the car he played with was running. Pronunciation was far from plain at 3 1/2 years but all

the sentences were comprehensible. At this test he took the examiner to his play room, and most of his remarks were about his own toys. Even at 4 years he mixed several of his letters. "When lou come upstairs I will show lou my toys. . . . Ah luh ee go down lah, gon't eh? (Ah look it go down there, don't it?) "Whah are lese [these] for? Ih lah a whurlburl?" (Is that a wheelbarrow?) "Are lou going 'tay here for a long time?" (to S). "Lah, don't get near our f'owers" (to children playing outside).

His difficulty in pronunciation is hard to explain; his brother had similar difficulty and the examiner noted that Jimmy at 3 1/2 talked as comprehensibly as Robert, who was then 5 years old. At 3 1/2 and 4 he did not talk as long as his mother was present, but after she had left and S had sat down on the floor with him he jabbered away in long sentences. At 4 years S made the note: "Talks as if he did not expect to be understood and as if talking were a chore. Seems pleased and surprised when S answers correctly and talks to him without asking him to repeat."

LAWRENCE. — Humming and singing tones characterized Larry's incomprehensible vocalization during the second year. From 54 to 104 weeks he averaged 9.9 comprehensible words to an examination and during that period used a total vocabulary of 54 words at the examinations. At 104 weeks, to his mother's question, "Larry, are you a nice baby?" he replied, "No!" "Then what are you?" "Good boy," he answered. In the McCarthy test at 2 years only 24 per cent were responses of naming the pictures. "Moah, moah!" he demanded, when he wished B to turn on to the next page. When his brother leaned over and put his elbow on the picture book Larry squealed "Ah, Donny [Johnny] go way!";

and when the ball rolled under the bookcase he cried "Pokah, pokah" to B, who was using the fire poker to knock it out. "Ow, knee," he said a few minutes later when the ball hit his mother on the knee.

At 2 1/2 a third of his responses were naming and 14 per cent were questions about the toys and pictures. "Show something to me," "Open that, Dr. Boyd," and "Help me," he requested, and when his brother came in he said "[I] show someping to lou, John." While he was putting the toys neatly away he said "Go on little ball, go on little ball."

Again at 3 a third of his sentences were naming responses; a fourth were questions. The rest were informational remarks about the situation. "This a dirty old ball. Cause it went dere [into the fireplace] I call it dirty ball. I'm going to try this [accordion]. It make some music. . . . How do you make some music?" "Dr. Shirley, Dr. Shirley, Dr. Shirley," he sang, echoing the name repeatedly. . . . "These are Dr. Shirley's book and this is my book. And even I'm going to show you this top."

Questions again made up a fourth of his sentences at 3 1/2; like David, he sometimes ended a statement with a questioning "didn't it?" "Oh, the kitty's head came off. Ouch, ouch, doesn't he say that? . . . I can catch this in one hand. I'll throw it clear up in the sky, shall I?" The picture book again brought forth a large amount of naming. "Here's a little pussy cat, here's a little pussy cat," he droned five or six times. "He goes like this, doesn't he? Meow, ow, meow, meow, meow," he sang. His mother quizzed him about his recent tonsillectomy, and he said, "I went to sleep. And then I went in another room. I went to sleep. And then after that Daddy took me to another place that

I didn't get my tonsils out. And I saw some taxicabs down there. White and orange taxicabs." His mother reported that he never lacked for a word.

Humming and singing echolalia was one of the most interesting and characteristic features of Larry's spontaneous vocalization. His mother encouraged it by teaching him little songs, and when the examiners were dinner guests at the time of his 4-year examination, he and John entertained them with a song recital.

MATTHEW. — Questions figured prominently in all Matthew's examinations. At 2 1/2 years most of them were the simple query "What's that?" At 3 1/2 they were more elaborate; most of them were inquiries about the mechanism of the toys. "Why has she got this? What is this supposed to be for?" (examining the accordion). "Where does the noise come from? What's one of those things? These things that are making the dumb noise?" (He was ringing the telephone with his hand over the bell so that the sound was muffled.) "It doesn't go very good. Mammee, how do you put ids in? See why from these holes the music comes, Mammee?" (playing with the accordion). "What's this for, Mammee? How do you woik this? The noise coming from in here? From in these holes?" Interest in machinery was evident also in his remark about the car: "It even has this on. It has to have this on. Watch what it does"; and also from his talk about Dr. Boyd's visit of the preceding week. "She had a tape. Why doesn't this lady have a tape. She don't even have a machine" (blood pressure apparatus). "And you toin a little 'crew. And you punch it to make it go up," he said in further description of Dr. Boyd's interesting "machine."

At 4 years his questions were more concerned with the examiner's motives. "Sure I like this telephone. Why

can't I have it?" His mother said, "Because it belongs to the lady." "Well, why does she have it in this suitcase then? Well, why does she have it in so long?" He talked about his father's tools and his own toys. "Oh, the Stillson wrench is up in the bathroom. . . . There's one of my trucks right there. But that blue truck used to be a good truck but I broke the wagon off of it. But this is a wrecking car. I hit that on the kitchen floor because I wanted a wrecking car." He pushed his toy truck down a strip of white wrapping paper on which a brown line of gummed tape had been pasted. S commented on the road. "And that line's going to be the grease underneath," he remarked.

His interest in musical toys and in mechanics was clearly expressed in his conversation.

MARTIN. — During his second year Martin averaged 7.7 comprehensible words per examination, of which 3.5 were different words. In addition he had a great volume of incomprehensible jargon. At every examination from 90 weeks on he uttered sentences signifying his knowledge or his willingness. "Ah know," he repeated five times at sight of the form board, and demonstrated his knowledge by placing the three blocks without a single false move. "Ah know" and "Ah vill" he used three times each at 94 weeks; and "I will," "Me will," and "all right" occurred two or more times at the ages of 98, 100, 102, and 104 weeks.

Ninety-four per cent of his responses to the McCarthy test at 2 years were incomprehensible, however; most of the utterances were exclamations and ejaculations at throwing the ball. He was able to imitate the examiner's name with "Shoorly," and his mother reported that he called himself "Marty." At 2 1/2 his pronunciation was far from plain; a fourth of his sen-

tences were naming responses and another fourth were simple questions. Naming and questions also made up the bulk of his conversation at 3 years. "Lady buy this car, did she, Mam? What id [is] this? . . . That a radio, isn't it?" (playing accordion). "I going have that car at birthday party." A fourth of his sentences were questions at 3 1/2 and at 4 years. At the former age, playing with the broken cardboard kitten, he asked, "How did it get broken? Got to get some nails. Unhunh, we could fix it with nails. . . . I can carry this," he offered, and he lugged the suitcase downstairs for S. At 4 he showed the examiner his own picture book, saying, "Them children's taking their baths. And one is turning the wight [light] on. How them going to get home? They tell the mother they can't get home."

His early willingness to help was exemplified at the age of 3 by his carrying S's satchel for her. His interest in the toys offered at the speech test was not great; outdoor play was his chief delight. Although he was talkative, his speech was an accompaniment of activity rather than a substitute for it.

QUENTIN. — During his babyhood Quentin was not a voluble babblor and he used very little speech at the examinations during the second year. At 2 years 28 per cent of his responses to the McCarthy test were incomprehensible and the remainder consisted almost entirely of "wow-wow" to pictures of dogs, "he'oh" over the telephone, calls of "Mamma," and the remark "aw done" when he had finished with a toy. His mother said that he repeated everything he heard, but that he did not coin new words as his older brother had done.

He was shy at 2 1/2 years and his mother tried to draw him out by questioning him and urging him to

talk. To her suggestions that he call his grandmother over the telephone and that he say "accordion" he answered a quiet but determined "No!" Seven times he rejected his mother's suggestions. She reported that he talked incessantly when alone and that he conversed freely with her. His shyness persisted and was intensified at 3, 3 1/2, and 4 years, but after fifteen or twenty minutes he became friendly with the examiner and began to talk a little. When he was 3 and 4 his brother entered in the middle of the test and his advent relieved the strain for Quentin. Quentin then addressed his remarks to Danny. His remarks were about the play situation. "Teddy go bye-bye now. Get the box for teddy bear. That's my teddy bear nightgown box. Put that cushion in. Now he's all gone," he said at 3 years as he put his teddy to bed in a box. At 3 1/2 it took more than twenty minutes to get him started talking. After six sentences he was silent for eighteen minutes more, and at the end of an hour he had made only twenty-six utterances, some of which were "zzz's" in imitation of the motor as he pushed the car along the floor. At 4 it required thirty-three minutes to get fifty sentences from him. Like Peter he repeated many of his sentences twice. "I going to shut the box. I going to shut the box and run it" (the car). "Had a wreck. Had a wreck. I want the car. I want the car. . . . I going to lock it again. I can lock it again" (suitcase). "I could make a different one. I can make another one" (drawing a man). "I make his face. And his tummy. And his big eyes."

Shyness, timidity, and reticence made it difficult to get a good speech record from Quentin. When he did talk his conversation was made up mainly of remarks about the immediate play situation.

VIRGINIA RUTH. — As a baby Virginia Ruth did a moderate amount of babbling and jabbering. The first meaningful utterance at an examination was the grunt of negation, accompanied by head shaking. This occurred at 54, 70, and 72 weeks. "Bah-wow," "man," "ball," and the questioning grunt "hunh" were the only other comprehensible words until 94 weeks, when she used "no" distinctly, "unumh," with the head-shake of refusal, and "all gone." At 98 weeks her refusal had become an explicit "I don't want to"; this she used twice, and she backed it up with the excellent reason, "Cause." In addition she said "no" five times. But her refusal gave way to one "aw right" of assent at 102 weeks.

Only twenty-six of her responses to the speech test at 102 weeks were comprehensible; she played with the ball and telephone throughout. There was one grunt of refusal in this record. At 3 years she chose the ball and the car as her playthings; one of these she gave to her sister, saying "Here, little Nan, here." Then she ran the car over S's hat, which was lying on the window seat, singing, "Crawl up the hill and see. See, ah, eedle, eedle, eedle, ee. Fun enough. Now come up the hill and come up the hill. See de ball. Now get up the hill. Say ball, you shouldn't do that. Ah, leedle, eedle lee. Leedle, leedle lee. It's going to get coal. Deedle, deedle dee. I found it in the garage. Oh, koko gik ko. . . . I'm going to start up. Deedle, deedle, geena, gwak. Just gone, good, good, gah, gah, good, deedle deedle dee." Thus she played and sang to these two toys. Finally S asked if she wanted to play with the picture book and other toys in the suitcase. "I can't take those things," she replied, and her answer was virtually a refusal, according to a note made at the time. Toward the end

of the examination she ran out of the room and made faces as if she were irritated.

The test at 3 1/2 years was conducted at the nursery school. She began with a long recital about the Easter bunny and eggs she had received. After playing with the car and remarking about it she said, "I want to look at that book. I want to read the Goosey, Goosey one. There's 'Mary Had a Little Lamb.' There's 'The Mouse Ran up the Clock.' What is that there?" (pointing to the spider in the picture of Miss Muffet). S said, "That's a spider. What did you think it was?" "I kind of thought of a beetle. 'Piders are sort of beetles." After naming several other pictures she asked, "You know Charlie Chaplin in the movie? He's a funny guy. You know the paper stuck to the wall and Charlie Chaplin eat it." Thus she reviewed the current movie "City Lights." Throughout the test, which required only ten minutes, she was interested, talkative, and cooperative.

At 4 years after showing S her doll furniture, a birthday gift, she got some paper from the desk and began to draw. "Now what do I need to draw?" she asked. S suggested a man. "Then I have to use colors. Are you going to get colors? Guess I'll draw a horse and a man. I guess I'll not draw a horse, I'll draw a —" Engrossed in her work, she left the sentence unfinished, but explained her decision against the horse. "Cause no horses has milkers. Seems like cows is the same as horses, doesn't it?" A broken pencil did not diminish her zeal. "I don't care. I'll draw right over it. See, nothing's the matter with it. Hey," to her mother, "what do you think it is?" She displayed the drawing. "Well, I think it's a horse," her mother ventured. "No, it's a pony. Sure it's going to have legs." And the

erstwhile "milkers" were converted into legs. "Oh, gosh, I made a little leg and a big leg, gosh. I need colors to draw horses with. Now which color do I want? I need this color. Don't you look," she admonished S. "All finished of the man horse. Eee, this is going to be a dumb horse. No, I'm not going to make him walk."

Virginia Ruth's conversation served her desired end, independent activity and amusement. She did not accept the suggestions of others readily; in fact she frequently refused them for the sake of putting her own ideas into practice. Much of her speech was egocentric, particularly at 3 years, when she sang to the toys, and at 4, when she thought out loud as she drew.

MAURICE. — During his first year Maurice did only a moderate amount of babbling. He used seven words in the examiner's presence before he was 2 years old. One of these was the expression "oh, boy" and another was an assenting "aw righ'." The understandable words in his speech test at 2 years included the negations "unumh," when offered the toys, and "naw," when asked if he wished to see the picture book, "gone" and "ah gone," which he uttered when he took the toys away, "Mamma," when he ran to his mother, and questioning "hunhs" over the telephone. Sixty per cent of his sentences were still incomprehensible at 3 years. "No, no, um ball," he said, and "Um gone," he added, going into the dining room and hiding the ball behind a leg of the buffet. Presently he found the pencils and said, "I write. A pencil, Arlene. . . . No, no, no," he protested when his sister Arlene said "I'll make a kitty." Over the telephone he said "hello" and "good-bye" very plainly and jabbered in conversational tones. His mother said he was just beginning to talk at this age.

His mother was talking over the telephone when the examination began at 3 1/2 years. "Mamma talk," he said. "Hear Mamma? She talk nice." Then to the toys he said, "Don't want this. Don't want these. This works. Me caught" (the ball). "Throw this back at. Now, throw ball now." He played with the ball throughout and talked a great deal about it in short and somewhat incomprehensible sentences.

At 4 years he was much more communicative. "My daddy buy me a traffic cop," he said. "See this, Dr. Boyd." He was confused on the examiners' names. "What matter with it?" (the broken cat). "Buy a better one. Buy another one and buy one. They cost money." At the picture book test he began to talk volubly about the pigs and chickens at Ernie's. S asked, "Who is Ernie?" "Ernie? You know Ernie." S was quite at sea as to Ernie's identity until the mother reported that Ernie was the young farmer husband of a former maid, and that the children had spent two weeks on the farm three months earlier. Maurice's wish to keep the toys came out at this examination in his bargaining propensities. At the examination just before his, Peter had put the empty cover of an ice-ticket book into the metal soap box. "Why those ticket in here?" Maurice asked. "You want to keep that box? Me keep the box and you keep the ticket," he generously offered.

The similarity between Maurice's speech and Virginia Ruth's is marked. Like her he stated refusals in no uncertain terms; like her, at 3 years he was more interested in the ball than in any other toy, and he declared that he did not want the other toys. His proclivity for running off with the toys and hiding them from the examiners also showed up at these tests. Although he developed speech rather slowly, he used it

effectively once he had it, as his arguments, his reminiscence, and his bargaining at 4 years showed.

TOREY. — In his babyhood Torey did a great deal of social gurgling and shouting to attract the attention of adults. In this he resembled Don and Frederick. He was like Don in developing comprehensible speech somewhat slowly and in showing marked progress at his 3-year test. At 2 years 86 per cent of his talk was incomprehensible and consisted of exclamatory hah's, hey's and huah's at the toys. Although he was happy, jolly, and interested, he was not at all talkative. His mother reported that he used only a few words in his everyday play. A third of his speech was incomprehensible at 2 1/2, and his understandable comments went no further than naming the pictures and toys and saying "Open, open, open" when he saw the suitcase.

At 3 he took the toys from the suitcase and called his mother's attention to them with "Look at the ball. Look at dat kitty. It's a car, Mudder, it's a car." When his mother said, "Call Margaret over the telephone," he refused, saying, "No, no, I can't." Then he started a game of ball with S, which brought out the exclamations: "Um, git it. It's gone. The ball's gone. Lookey, where de ball? I know. Yah, it went in the stove," along with occasional grunts of pleasure. "Have you got a new car?" was his greeting to S at 3 1/2 years. He then commented on the dilapidated suitcase. "Started to broke, didn't it?" He then looked at the books, named the pictures, and completed the fifty-sentence test in ten minutes. He stuttered a little, almost imperceptibly; for example, to S's question, "Where is your tricycle?" he answered, "Down in-in-in the basement."

At 4 he described his birthday party. "Yes, I had a

birthday cake. Just when it got dark. In the candle-light." After examining S's toys and assuring her that he didn't have a telephone or an accordion like hers he brought out his own toys. He carried in a train and track. "I have some more junk, got all these junk in here. A lot of junk here," and he brought out more and more toys. He talked well and plainly at this age, even though he had been slow to develop communicative talking.

SIBYL. — In the development of speech Sibyl led the group. The number of incomprehensible utterances recorded during her babyhood was small, but during her second year she used an average of 25 words per examination, and by 104 weeks she had used a total vocabulary of 126 words in the presence of the examiners. At 94 weeks she used sentences of four words: "I want the clock. I want the ball. It's a cup. Horsey, gone. Run, run, run fast." She did not confine herself to naming the pictures at 98 weeks but commented: "Dere ball. Ball bounce. 'Scup" (it's a cup). "O'ange juice. Bow-wow. Eye dere. Feet. Tail. Au'o [auto]. Dere door. Girl. 'S person. Legs. Got hair. Man. Hat on. Got dirty hands." (The man in the picture wore yellow gloves.)

From 2 years on all her responses to the McCarthy test were comprehensible. "I went to your party," she said as she opened the door at S's arrival. S had given a party for the mothers and babies at 2 years. "That a wow-wow. The wow-wow got a feet, big feet. . . . Cow says moo, wow-wow says wow-wow. . . . That's the girls and the kitty," she said to the pictures, and finally, when asked what was on the next page, said, "Just pages, that's all." "No, Cha'lotte play it. No, I can't pull it," she said when her older sisters urged her to play the accordion, "No, unhunh"; and when they

suggested that she call Grandmother over the telephone she refused with "No, I can't. Grandma's up at lake, swimming."

At 2 1/2 she talked in paragraphs rather than in sentences. Each picture and toy touched off such a volley of comments that S, scribbling away at top speed, was unable to get more than one sentence out of three. As the examiner entered, suitcase in hand, she said, "I thought you would bring some toys. I thought you would have a kitty that squeaked." She began to look at the picture book. "Here's a dog. Dog barks, he does. Wonder what's inside. Here's a kitty. Here's a bunny rabbit. He has big ears up in here, he has. Here's a little mouse," and then followed a flow of chatter ending, "He [the mouse] says Sibyl's a good girl. Here's a cow. This is a cow. He eats some, what? I know, he eats spinach, he does. Here's another cow; he eats grass. We used to catch grasshoppers. Here's a little boy eating supper. He has sugar and cocoa. . . . We got one, two, three books for Christmas. See? We have two books. We sent some cards. Aunt Lucy James has cards. She never lets Sibyl look at cards. . . . Now this is a squeaky book [accordion]. Squeaks like this. What's this, a jar?" (jar of alcohol sponges for cleaning the toys). "It has cotton in it. To bathe the eyes when it hurts." Thus she prattled on and on.

Dr. Boyd preceded S a few days at the 3-year test. For some reason Sibyl disliked the measurements; hence when S appeared with a suitcase identical with B's instrument case, Sibyl edged away from her and refused to look at the toys. Her mother then suggested that she show S some snapshots of the family vacation. "Here's a picture of Aunt Lucy. And here's Gwammie giving Sibyl a great big stone. And this is a picture of

the boat. That's John. Indian. He cooks. Well, he cooks pancakes. And he can make syrup, too." She then took S to the nursery and displayed her new and completely furnished doll house. "Here's the bathtub and here's a chair. Here's the things to put towels on." At this point she began explaining how to wash hair. "We just put soap on it. Then we sprinkle water on our hair." She then called S's attention to the kitchen stove, and her mother asked what she would cook on it. "Well, we would cook orange juice and other things. Then we cook grapes. No, we don't cook grapes. And we cook some eggs. We scramble it. We pop it in. Just scramble it like that," she illustrated. Her mother reported at this age that she coined neologisms; one of them was "We 'sheen' on the sewing machine."

When S arrived for the 3 1/2-year test Sibyl was entertaining two 5-year-old neighbor children. Again she was not interested in the examiner's toys, and instead of paying attention to them began to make a jig saw puzzle, racing with the two guests, who were at work on another puzzle. All her conversation was about the puzzle. "Guess I just like to make puzzles. I came over to the University and made them" (at mental test). "I guess you forgot the University. There, these two fit together. Well, now where's that other piece. Here's a part of kitty's eye now. I've got it half done now. Here's one piece and I'm half done. . . . There, that's together. Isn't it a funny puzzle? Well, isn't this a funny piecy. Shall I break this one up? Oh, jingo, what's the matter? Jingo. Well, now this puzzle's mussed all up. This is about spattered all over. This puzzle is too scattery." She worked eagerly and rapidly, finishing two 25-piece puzzles in about twelve minutes. She had made them before, to be sure. She outstripped

the two older children, who were working together but who were unfamiliar with the puzzles.

Her speech at 4 years was mostly about her own toys and her experiences. "Look at the new paper dolls we've got. Say, and this was a little thing I got last Christmas. This is her dress, and this is the underwear to that dress. And here's her hats and this is the bathing suit," she said, displaying a trunkful of doll clothes. "I'm four. They're going to give a different class. They've a class for big ones and little ones," she explained in talking of her promotion from the nursery class to the kindergarten class at Sunday school.

Sibyl's speech showed the characteristic stages of naming responses, information about the immediate situation, and information associated with the situation, but she passed through all these stages very rapidly and by 2 1/2 had advanced to more remote topics of conversation. She drew upon her stock of information as far as possible and when it ran out she resorted to her lively imagination for more verbal ammunition. From 3 to 4 her chatter was diminished in volume, so that S had no difficulty in recording all of it, and her responses to the test were somewhat more related than before to the everyday world of fact and the demands of social intercourse, and less to the realm of fancy.

JUDY. — In early speech development Judy was second only to Sibyl. She used an average of 14 comprehensible words to an examination in the latter half of her second year, and had spoken 71 different words at the tests before her second birthday. Most of these were names for the pictures and toys. "Hurt," she said at 102 weeks, rubbing her head and pointing to a matted scab in her hair. "Oh, that's too bad," S said. "How did you get hurt?" "Fall," she replied, "bump, swing."

Thus she recounted a whole incident in four words that told her story adequately and concisely. This illustrates how the young child can stretch a small vocabulary over a wide range of experience, sparing his listener the tediousness of verbosity without sacrificing clarity. Naming of the pictures and toys made up two-thirds of her responses at 2 years. For some reason she was not as talkative as usual at this test but instead walked around and cut monkey-shines for the examiner's benefit. At 2 1/2 she named the pictures and hunted up a book of her own that was a duplicate of the examiner's. Her mother reported that she had learned to sing eight or ten songs and to say every rhyme that her sister, Madelyn, had learned at kindergarten.

Comparisons between her own toys and S's also occurred at 3 years. "It's not big like ours" (the toy automobile). "Ours got a big hole in it. Can I show it to her? I can't find it now. We've got a telephone, haven't we? But it broked. We got a book like that. Maybe it ain't." The Mother Goose book interested her. "That's 'Hey Diddle Diddle.' I got a hey diddle diddle tup [cup] and a hey diddle diddle dish." "You can play with something, Madelyn," she said generously. "You can look at this, too, Madelyn. I'll let you look at this, Madelyn. . . . I got 'Mary, Mary, Quite Contrary' up in the attic. That's 'Mary, Quite Contrary,' isn't it?"

She apparently recognized the toy cat as an old favorite at 3 1/2 years. "Don't squeak. It doesn't. Once it did squeak, but now it's broken. We've got one of these only he hasn't got a face." The book of rhymes again called forth many comments. "That's Jack. Jack, pump the water" (Jack and Jill). "Madelyn knows about this one. Wonder what this one is about? Do you know, Mamma? Oh, we had one [book] like

this. I bet you stoled our one. We had one like this, didn't we, Mamma?" To her indirect questions beginning with "I wonder" she apparently expected no answer. Her mother reported that a few days before she had told Judy they would listen to a radio talk given by S. "Who is that talking?" her mother asked when the talk began. "That's Maywee Shirley's voice," Judy answered.

She had to be called in from play outdoors at 4 years, and she was a little shy and reticent at first. She displayed her own toys. "I've got a little glass doll. Upstairs. It's got a blue dress on. She's gittin' kinda dirty." S suggested washing her, "Sure, but I don't want to. I'll be 4 years old on my birthday. My feet are wet" (to her mother). "I haven't got no other shoes, have I?" Her mother said, "You have your Sunday shoes." "Yeah, I couldn't wear them though." "When it snows," she went on, "I'll make snowballs." S said, "It hasn't snowed yet." "But it's close to it," Judy replied. "Yes, it's so cold out. I don't know where our sled is. But you know, when it snows Madelyn wants to get a sled and put wheels on it and take me riding."

At the tests her speech was pretty well circumscribed by the immediate situation and events related to it. Not until 4 years did she bring up outside topics. She talked well and rapidly from 2 years on; every sentence was comprehensible even at the 2-year age level. Although talkative, she was never so great a chatterbox as her sister Madelyn, who plied the examiners with endless questions at all their visits, which began in her third year.

WALLEY. — Walley was the most loquacious of the boys in the group. In babyhood he exceeded Fred slightly in number of utterances and throughout his

second year he used more different words than David, though David had a larger total because of his questioning habit. Walley's vocabulary of 104 words at 2 years was second in size to Sibyl's. At 78 weeks he definitely began to name things, and by 90 weeks he was pointing, questioning, and naming everything after it had been named for him. "R, B, A" he said at 94 weeks when the "A B C" blocks were scattered on the floor. "Swim and Daddy swim," he replied to S at 96 weeks when she asked whether he swam in the lake. At 102 weeks his father urged him to tell what he saw at the zoo, and he clearly repeated "monkey," "lions," "tigers," "birdies," "elephant," and "hippopotamus" after his father. When B attempted to scratch his foot for the Babinski reflex at 104 weeks he pushed away her hand with "No, no, no, p'ea [please] don't."

His performance at the McCarthy test at 2 years was poorer than his usual chatter, possibly because the toys restricted him somewhat in his naming responses. Thirty per cent of his sentences were incomprehensible. After the test was over he became more conversational, telling S about his car as he helped her put away the toys and close the suitcase. At 2 1/2 more than half his sentences were questions. "What's this? Who brought it? Where hang up the telephone? What's this in here?"

Before his third birthday the family had moved from the city, but his mother called S to the hotel when they came to town for a week-end. S's toys had little attraction for him at this age, for his father had just brought him and Libby new balloons. "I'm going to untie my balloon, too. I want air, too. Do you want some air? You are pink" (he was looking through his red balloon at the examiner). "You peek in yours, Libby. You see

in your balloon if your window is pink. Can I peek in yours once? Here's my performing balloon." He threw the balloon in the air and caught it. "What does it say on my balloon? If our balloon was as big as this hotel, it would bust down. That what it would do." At this point Libby began to read "The Swing" from a new *Child's Garden of Verses* that her mother had brought. "Up in the air and down the air," Walley paraphrased. "Up in the air and down again. Up in the air and over the air and the wall."

One Saturday afternoon a year later S happened to meet Mrs. Maughan on the street. She was doing a bit of shopping, she said, Mr. Maughan was at the football game, and the children were at the hotel in charge of a maid. Certainly, she would be glad to have S go over and test Walley. So without the usual equipment S hurried to the hotel. The children had improvised a slide out of the hotel rockers, banking it at the base with blankets, and were running from the slide to the bed, prancing across one bed, leaping to the other, and sliding in a delightful and uproarious circuit. They interrupted the game long enough to show S their Hallowe'en masks. "We didn't get any else, did we, Lib?" Walley said. "Come over, Lib, let go! Well, let go! I'm going to tell Dad to get me another one and a pumpkin that will light." "Well, I haven't got my mask. I busted it. Lib busted it." Libby then asked S why she came. S said, "I wanted Walley to talk to me." "Oh, Brother just talks awful," Libby said, "he just says everything bad." "I say 'shut up' and 'dumb' and everything," Walley ventured, fixing his eyes on S's face to see what effect this dreadful language would have on her. Disappointingly S merely scribbled on. "Oh, I say 'God damn it' and everything," he continued, whereupon

S summoned the look of shocked surprise and the words or reproof that he felt were due him. "I go to Normal and Teachers College," he replied to S's question as to whether he went to school. Mrs. Maughan had told her that he was enrolled in the nursery school of the normal college in their town. "X and quilts, X and quilts, X and cabs," he chanted as they resumed their parade across the beds and down the slide. "Hey, now I have to step on them. Ooh, this is a heavy chair. And over I went. I'm so swinging. Wooh. Sprained my ankle. I'm tired out, whew. This is acrobatic. Here I go, now watch me. Here I come bouncing down. There, how you like that?" But the play grew a little too rough and Libby was hurt and began to cry. "Sassy face, sassy face," Walley taunted as he charged up and down the bed. Promptly she pushed him over and he bumped his head on the rail at the foot of the bed. He cried and the record ended with S's attempt to calm them by saying, "Mother will be here soon." "Well, I wish she'd hurry up and come home," he sobbed.

From 2 1/2 years on his speech was entirely comprehensible and he talked well in meaningful sentences. Although the examinations at 3 and 4 years were made under conditions that differed greatly from those of the other children, his records were consistently good. He was social and affable with the examiner even though he did not see her at the regular intervals.

SUMMARY

The children's conversations have been quoted at length that the author might not be accused of citing only the relevant utterances that expressed the child's personality as she saw it. The excerpts certainly establish the fact that these children differed not only in

their rate of acquiring speech but also in their need for speech and in the uses to which they put it. The thing each child talks about and his manner of expressing himself are in general compatible with his other personality traits as they appeared from the psychological examinations and from incidental observation. The pattern of personality is ²⁵clearly woven into the fabric of speech in early childhood.

CHAPTER VI

THE BABIES AND THEIR FAMILIES

As an earlier chapter pointed out, one of the advantages of carrying on observations in the homes over a period of several years was that it gave the examiners an intimate acquaintance with the children's families and home environment. No quantitative evaluation of the home and the family relationships was attempted. It seemed better, from the standpoint of keeping *en rapport* with the family, not to quiz the mother about her husband's income, or ask her help in making a social or economic appraisal of the home, or pry into her marital or family life. Hence the examiners discarded their scientific rôles as far as possible and tried to deport themselves as friends and neighbors. The original plan had been to utilize what social rating scales there were in obtaining data on the family, but the examiners were kept so busy with the routine work on the baby that they abandoned this idea. Changes in the home did not escape them, however, and they made such comments as: "You've shifted the furniture. It makes a nice grouping with the davenport in front of the windows"; "You have a new etching. I like it"; "So you did exchange the rugs after all! Yes, this one really is better; the other was almost too dark for this room." Nor did the mothers keep their family plans, hopes, and worries from them. Since they lent sympathetic ears and respected confidences the mothers talked freely and often unburdened themselves. Occasionally one would

say with a shrug, "I suppose you'll put all this in a book sometime"; but she did not let that thought deter her from further intimacies.

Thus, although there are no pencil-and-paper records of family life, a memory-image of the homes is engraved indelibly on the examiners' minds, and clear-cut impressions of the parents and other children remain. These impressions, gathered during five years' observation and acquaintance, certainly have some scientific value.

They will be presented in the form of case histories. In these histories the writer will attempt, without distorting or foreshortening the perspective and without betraying confidences, to sort out and present relevant facts that give a distinctive picture of the several families; to take an unbiased view of each; and to refrain from making judgments or critical evaluations of the parent-child relationships.

Before going on to the histories it may be well to characterize the group briefly. The families all belonged to the upper three socio-economic classes, as rated on the occupational scale used at the University of Minnesota. None were wealthy and none were destitute. The fact that they consented to having their babies studied and that they cooperated over a five-year period indicated an intelligent interest in their children and a helpful community spirit. That all but three of the families who remained in town through the two years owned their own homes speaks well for their economic, social, and familial stability.

WILLIAM FREDERICK AND WINIFRED THOMPSON. — The Thompsons are an academic family. Professor Thompson is chairman of his department at the University and is known on the campus as a genial and efficient

administrator. His first loyalties are to his family and his job. Enthusiasms second to these are athletics and games, photography, and tinkering with mechanical devices. Football afternoons find him and his three older youngsters cheering from the front row of the stadium. Mrs. Thompson, a southern woman, is a perfect exponent of the traditional southern hospitality. Cheerfulness and enthusiasm are definitely a part of her code. She is utterly devoted to her husband and children, and during the first six months the twins were seldom beyond earshot of her reassuring voice.

Flo, the eldest child, is eight years older than Winnie and Fred. She is fond of reading and is somewhat advanced in her school work. At the age of 12 she became very much interested in Shakespeare's *Julius Caesar*, and her enthusiasm led her on to Shakespeare's other plays and spread to her younger brothers. One day Winnie, looking soberly perplexed, asked, "Mother, are 4-year-olds supposed to know much about Julius Caesar?" "No," her mother answered. "Why do you ask?" "Well, Jack and Phil are always talking to Freddie and me about Julius Caesar and we don't know much about him and they think we're pretty dumb." Flo was very fond of the babies and held them, watched over them, and assumed considerable responsibility for their care and entertainment. When Winnie grew old enough to appreciate doll clothes, Flo patiently sewed for the large family of bisque and rag babies so dear to Winnie's heart.

The two boys, Phil and Jack, six and a half and five and a half years older than the twins, are inseparable companions. During her early months Winnie became much attached to Phil, who smiled at her and paid somewhat more attention to her than Jack did. When

the twins reached the walking stage, Phil sometimes accompanied his mother when she took the twins to the doctor's office, helping to lead them across the street intersections and amusing one while the mother and doctor were busy with the other. Phil and Jack often were interested spectators at the physical and psychological examinations, and at such times they plied the examiners with questions and thoroughly explored the doctor's kit. Their investigative ingenuity runs along mechanical lines, and taking apart their mechanical toys is one of their favorite amusements. Indeed, their mother once remarked as she stood looking at a scattered array of cogwheels, springs, nuts, and bolts that had once been a toy truck, "A year or two ago Will and I related with pride how Jack and Phil had taken the new radio apart. We cited it as an example of their mechanical ability. But I'm beginning to wonder if it isn't just plain destructiveness."

All three older children are extremely fond of the twins. They coined the nicknames Winnie Walker and Freddie Talker for them late in their first year when Winnie was outstripping Freddie at motor performance and Fred was compensating for his inability to creep and walk by incessant jabbering. That the twins regarded Jack and Phil as a unit was shown by Winnie at 18 months. Flo and some of her little friends were having a game of cards, and one of them remarked, "I played the Jack." Whereupon Winnie, who was playing near, piped in her babyish treble, "Jack-Phil."

From the day of his birth Freddie has been a tiny replica of his father in looks and in little gestures and mannerisms that cause neighbors and relatives to comment on the striking resemblance. It is impossible to describe these mannerisms; they must be seen to be

appreciated. Some of the most recent manifestations have been verbal. To his mother's question, "Fred, did you leave your tricycle outdoors?" he came back with "It is just possible" — an expression that the professor's students would recognize as a "typical Thompsonism." Because in Freddie he almost sees himself living his childhood over again, this little son is particularly dear to his father's heart. Some of the behavior in which the child resembles his father, such as use of his father's favorite phrases, he doubtless has copied, consciously or unconsciously; other similarities, in facial expression, gestures, and gait, which appeared too early to be attributable to imitation, probably are due to inherited similarities in bodily structure.

Fred's expansiveness of personality is well illustrated in the frontispiece of this volume. With outstretched arms and open, babbling mouth, he is playing up to his mother, the photographer. Equally characteristic is Winnie's pose, which shows her as the interested, thoughtful, indulgent onlooker in the background. This difference in the pair showed up almost at birth. At birth and before, Fred's activity was less strenuous than Winnie's; and up to their present age, 4 1/2 years, Winnie is slightly superior in the acquisition of new motor and manipulative skills, though differences in mechanical interests in Fred's favor are decreasing the discrepancy between them. Some roughness in his manipulation between 6 and 9 months suggested that he would follow in the footsteps of Phil and Jack in the matter of taking things apart in an investigative spirit. He is much harder on his clothes than Winnie. It is impossible to keep the pair dressed in "brother and sister suits," for Fred's is in tatters before Winnie's is half worn out.

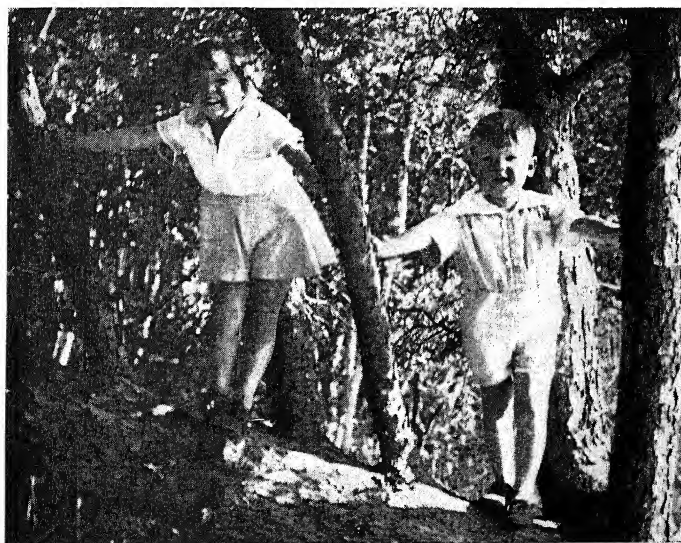


PLATE 3. — PERSONALITY BEGINS EARLY AND PERSISTS

Above. — Social Fred and serious Winnie at 11 weeks.
Below. — Happy Winnie and mischievous Fred at 4 years.
 Compare these with the frontispiece.

Fred's desire for social approval and his habit of seeking the limelight are recognized by persons less intimately acquainted with him than the examiners and his family. When the twins were 2 1/2 years old Mrs. Thompson took them with her on an extended visit to her parents. One afternoon a girlhood friend who ran in almost daily to call was chatting on the porch with the twins' mother, grandmother, and aunt. "Win," she remarked with a twinkle, as she watched the twins playing on the lawn, "that son of yours was born to be a bishop." "That's amusing," laughed the mother, "how did you come to that conclusion?" "Because," the friend replied, "he loves attention, he just has to talk, he's a huge success with the ladies, and he's physically lazy!"

Winnie's retiring personality and her devoted, helpful, and mothering attitude toward Fred likewise showed up early in life. Numerous examples of both these traits have been cited in the preceding chapters. Beginning with kissing his bumps at 18 months, her tendency to comfort and wait on him has developed to the point where she helps him with his dressing at 4 years. One day when they were 3 years old, Fred started downstairs head first. Winnie begged him not to do it, but to no avail. She therefore stuck close beside him till he was safely down, muttering with anxiety and vexation, "Oh, Freddie, I have to keep you right under my nose all the time." The phraseology, of course, was borrowed from her mother, but the concern over Fred's welfare that prompted her remark was her own, and it was a matter of long standing. It was just as strong at 3 1/2 and 4 years, according to her mother. Her love for Fred also leads her to shield him from blame.

Fred is not the only one to benefit by her ministra-

tions. Before she was 2 years old she was emptying and rinsing her own pot in the bathroom, and gradually she assumed more and more of the duties of dressing and caring for herself. Now, her mother says, at 4 1/2 she makes beds almost as well as Flo. She willingly performs little errands for her mother and her care of Fred spares her mother somewhat. A little cousin four months older than the twins came for a visit on their third Christmas. She and Fred quarreled and argued continuously over nothing in particular, and apparently thrived on disagreement, but Winnie was genuinely upset and distressed by their strife.

She did not let Fred override her completely, however. At 10 months, when he began to play roughly, she shrank or crept away; at 2 years she said "Go way, Freddie," when he became annoying. The afternoon following Dr. Boyd's announcement, "Winnie, you are a half inch taller than Fred," she rebuked Fred with "Quit, Freddie. Short people shouldn't bother tall people."

In short, Winifred's early years foreshadow for her the life of a Martha — a gentle, kindly, reticent child who seems to have a natural bent for loving service.

PETER AND PATRICIA SCHUMANN. — The Schumann twins present an interesting contrast to the Thompsons, for although the two rôles, dominance and submission, appear in much the same way, the sex of the actors is reversed. Patty is the little tyrant to whom Peter dances attendance.

Mr. Schumann is a successful young salesman whose business takes him away from home much of the time. The examiners saw him only once or twice; on those occasions he was most affable and friendly. He is very fond of his little son; in fact, the parents had hoped and

planned that their second child would be a boy. The extra little girl is by no means an outcast in the father's affections, however. When the twins were 3 the mother reported, "Peter and his father have a great crush on each other, but my husband thinks the sun rises and sets in the girls. He simply worships both of them. In his eyes they can do no wrong."

Both the Schumanns have a casual, matter-of-fact attitude toward their children. Mrs. Schumann bathed, dressed, fed her three babies (for Molly Sue was only sixteen months older than the twins) with an easy adherence to the prescribed rules for good infant care but with no tendency to make a fetish of routine or formula. She loved her babies and did not treat them as untouchables but held and cuddled them when she wished and did not withhold them from her friends. She worried about them only when occasion demanded. The twins' first winter was not without anxiety and hardship for her. In the midst of a subzero blizzard a broken sewer put out the furnace fire for several hours; the chill of the house could not be dispelled by a grate fire. Patty contracted a cold that almost ran into pneumonia, and for days the mother hovered over her with anxious care. The winter was particularly severe, with deep drifting snows. They lived on the outskirts of the city beyond the zone where streets were cleaned, and twice they were snowbound for two or three days without milk or food supplies. All these things the mother retailed to the examiners with a cheerful "It's all in a lifetime" rather than with a note of self-sacrifice and resignation.

Molly Sue, the other child, is an active, curious little busybody. She was fond of plundering the examiners' kit. Since she was so near in age to the twins and since her mother was usually occupied with one of the babies

while the examiners were busy with the other, her occasional meddlesomeness was to be expected. Usually her mother sent her outdoors to play or into the kitchen to stay with the maid to keep her from interfering in the tests. As she grew older she seemed to feel somewhat an outsider during this interesting play period, and often fretfully resented being cloaked and bonneted and thrust outdoors at the examiners' arrival. After the twins reached the runabout stage the three children played contentedly together. They grew so rapidly that they were almost her equal in size and strength, and the three might almost have passed for triplets.

If Peter does not grow up to be a meek and henpecked husband it will not be from lack of early training at the hands of Patty. From the first year he has been her willing and devoted slave. He early centered his attention on her instead of on adults. When he was 2 1/2 the mother reported, "Peter is crazy about Patty. He calls her Honey, and he won't eat or sleep or play without her. He walks around with her hand in hand; he won't let her out of his sight. Patty doesn't care so much for him and she certainly knows how to work him." When the twins were 3 1/2 Mr. Lawrence, the Institute technician, accompanied the author on the examinations. While each twin in turn sat on the front steps with S for the speech test, he entertained Molly Sue and the other twin in his car. As a special treat he took all three for a ride around the block while S chatted with Mrs. Schumann. "Doesn't Peter lean on Patty quite a bit?" he inquired as he and the author drove away. "What makes you think he does?" S asked. "Oh, I don't know exactly, but the things he did and said gave me the impression that she's the leader and he the follower. Am I right?" Peter compensates somewhat for his slavish devotion to Patty by teasing Molly Sue.

The "eternal feminine" is certainly exemplified by Patty. Her desire to be held and cuddled, to be somebody's plaything, was well established at 4 months. It may have originated during her severe illness at 6 weeks; but however it began it continued throughout babyhood. Nor did she demand cuddling from her mother only; B had to contribute her share at the psychological tests. At 7 months Patty was enraptured at her own reflection in the mirror; before she was 2 she begged to be dressed in a new pink dress after her measurements; and at 3 she was truly vain of her appearance. Dressed in a sheer blue voile frock, a perky blue bow on her fair curls, she was the perfect picture of a dainty little girl when she greeted the examiner for the test at 3 years. At that time her mother reported, "Patty is very fussy about her clothes. She wants to dress in her best every day. She has two pairs of silk bloomers for special occasions, and every morning she says to me, 'I wear my silk undies today, Mamma.'"

At 2 1/2 she had seized upon the typical feminine argument to bring Peter to time — an appeal to love. Perhaps the expression had come from her mother's efforts to settle quarrels by some such words as "You babies mustn't quarrel. You must love each other." However she learned it, Patty found it an effective argument and used it at the appropriate times. At 3, the mother reported, the twins always called each other Honey and Honey Boy rather than Patty and Peter, and Patty even corrected her mother for using their true names. "Patty still wraps Peter around her finger," Mrs. Schumann continued. "A few days ago, when I had callers, Patty tried to take a toy away from Peter. I made Patty go sit on the stairs as punishment. But Peter immediately followed, sat down beside her, talked to her, and gave her the toy."

In each pair of twins there is one who leads and one who follows, one who demands and one who gives up. Why the girl should impose on the boy in this case and the boy on the girl in the other it is impossible to say, for in some of their traits the two little girls are alike. Both Winnie and Patty were more active than their brothers at birth, both acquired new motor skills somewhat more rapidly, and both had an early illness, although Winnie's was during her hospital period and she had to be isolated from her mother's care. It seems impossible, however, to explain the differences between the two members of each pair by differences in their handling or in their experiences or by the simple formula of early conditioning.

DON KENNEDY. — If a family could be called "artists in living," the Kennedy family could. Mr. Kennedy is a youthful-looking man who holds a minor clerical job in a factory. He earns a small salary on which the family lives in modest comfort. In obstetrical and medical care he provides the best for his wife and children. He is cheerful, friendly, and cooperative toward the examiners, and he is a devoted husband and an adoring father. His hobby is dancing and clogging. Once in his youth, when he was stage manager in a theater, he substituted for an absent dancer, and "He could have gone on the vaudeville stage," his wife told us one day when we were remarking on Don's clever clowning. A follower of sport, he named his son for the boxer who won a championship the day of the baby's birth.

Mrs. Kennedy, a slight, girlish woman, was a telephone operator before her marriage. She, too, is cheery, sociable, and cooperative. Indeed, her mother's records were the most voluminous of the lot. Her spare-time talent is drawing and sketching. These "talents" the

parents reported naïvely, without ostentation and equally without apology. At her work she flits about the house with birdlike lightness, and the home is always spotless and the furniture shining.

Though utterly wrapped up in each other and in their children, the Kennedys achieve a matter-of-factness in their family relationships that a psychiatrist might point to with pride. Between them and their elder son, Roger, ten years older than Don, exists as frank and casual a friendship as if he were their younger brother. If they ever disciplined him, or if he ever needed discipline, it was not apparent during our visits. His mother's "Rodge, will you run to the grocery for a loaf of bread, please?" was not prefaced with an endearment or followed by a "for mother." "Sure, the minute I finish this page," he answered, and did so with alacrity.

Roger's chief amusement is reading. He shares both his father's and his mother's talents. He has a facile pencil, and sometimes he used to embellish Don's drawing record with a profile. One Saturday in early spring he danced into the house wearing an orange and black plaid lumberjack shirt, a black skull cap, and tennis shoes. Behind each ear and in each buttonhole he had stuck a dandelion; dandelion pompons stood out between each shoe lacing; and on his chin was a lilac leaf goatee. With a few leaps and whirls he pirouetted before us as "the Spirit of Spring." He was chummy with the examiners and once sent a well-written thank-you note to the writer, who had sent him some stamps for his collection.

The parents had lost a little girl of 2 1/2 a year or more before Don's birth. This child figured in their conversation quite as if she were alive.

They face their financial and educational limitations

with a simple realism that makes no excuses. Late in the second year Mrs. Kennedy said, "I think Don's a little slow at talking. Roger was saying everything before he was 2. Do the other babies talk much?" "Some do, and some don't. Sibyl talks very well." (Mrs. Kennedy had met Sibyl, for her mother had entertained some of the mothers and babies at her home at the baby party.) "Oh, I'd expect Sibyl to talk better and be faster at learning things than Don. Her parents went to college and have education; and Mr. Kennedy and I haven't," she rejoined.

Don's friendliness, his clowning proclivities, his interest and skill in marking and drawing, his affability, and his gentlemanly and chivalrous manner, on which the psychometrician commented when he came with his father for the mental test at 4 1/2 years, are traits he shares with the other members of his family. The Kennedys live within their economic and intellectual income and enjoy life.

TOREY LUND. — Mr. and Mrs. Lund grew up in a small village and rural community and were graduated from a denominational college. Minneapolis became the headquarters for Mr. Lund's business shortly before Torey's birth. Since most of his work is done in the surrounding community, he is at home only week-ends, and the examiners seldom saw him. He is friendly and interested, however, and is extremely proud of his small son.

Mrs. Lund taught school before her marriage. She is practical and intelligent in the management of her household. Torey was her first baby and she was inexperienced in infant care. Since she is alone much of the time, and the home village is not far distant, she and her parents and parents-in-law visit back and forth a great deal. From her elders she receives much advice

about the upbringing of children, some of which is good common sense and some of which consists of superstitious old wives' tales. She readily sifts out the dross and has consulted Dr. Boyd freely for advice on feeding and care when her own knowledge was inadequate. Sometimes she has asked B for reasons to back up her own conviction that a family-prescribed panacea was worthless, in order that she might cite medical authority if she had to defend herself for not putting the remedy into practice. She is very friendly and always gives the examiners a warm welcome.

Because of his difficulty in digesting his food Torey was a very irritable baby during the first 6 weeks. He kept his parents awake at night, and he put up storms of protest at the examinations. But with the help of B's advice his mother found a feeding formula and a schedule that agreed with him and he straightened out and became one of the most affable and friendly babies in the group. Sociability, rather than motor or vocal behavior, is his chief stock in trade. He has never been shy with the examiners; only once, when at 66 weeks his mother had left him at the home of a neighbor and S brought an assistant in B's absence, did he exhibit the slightest reluctance to play with the toys and take part in the test.

His family's absence from the city during the latter part of his second year made his examinations irregular and hence important data on intellectual and speech development are missing. Although he was slow to begin walking and talking, his mental examination at 3 1/2 years showed no retardation. It is probable that as he and his mother were alone a great part of the time, he was not greatly stimulated either by his needs or by the example of others to fare forth on his own legs or communicate his wants and ideas.

He continued friendly and interested throughout the four years. The Institute tester commented on his splendid cooperation at the mental tests. Shortly after his fourth birthday a little sister was born, and his mother reported that he was delighted with the baby.

MARTIN BEYLER — The Beyler family had been fine cabinetmakers and in two generations their business had grown into a modest manufacturing concern. At the beginning of the study Mr. Beyler was engaged in this family enterprise. He is a large, well-built man, six feet tall and of rugged physique. On occasions when he was home during the doctors' visit he nodded pleasantly to them and resumed his gardening.

Mrs. Beyler is a wiry little woman, brisk and youthful in her movements. Her voice has a musical ring, and she manages her children and reproves them when necessary in calm, unflustered tones.

In looks all the children resemble their father more than their mother. Martha Royce, the eldest, is nine years older than Martin. She is a tall, quiet child. Sometimes on school holidays she watched the examinations but she never interfered in the situation.

Stephen was not quite 3 years old when Martin was born. He, too, is tall and heavy of frame for his years. He often watched the examinations, asked questions, and examined the contents of the kit, but he did not make a nuisance of himself. Whenever the weather was at all suitable he played outside, happily and strenuously. Physically he is a match for children a year or two older than himself. Indeed, Mrs. Beyler was somewhat upset at one time because one of the mothers in the neighborhood considered him too rough in his play and refused to let her child play with him. Any bumps or bruises that Stephen incurs in the day's play he takes

with stoical fortitude; any wounds that the other children suffer from their play with him are not intended and are attributable to his greater strength and skill in motor acts. "He is so active and full of pep," his mother says, "that he just doesn't think that what he does may hurt someone else." But a 4-year-old can hardly be expected to go through such a reasoning process in his play. Stephen displayed chivalry toward the examiners by holding open the door and by carrying their satchel out to the car.

Martin's prowess in feats of motor strength and skill are dwelt upon in Volume I, Chapter X. Not only was he the earliest creeper and the first walker but he was the most indefatigable climber and the most inveterate exerciser. All other traits are subservient to his motor activity. He is never shy and he is interested and co-operative at tests provided only they give him scope for using his motor talent. At 7 months he found tests that confined him to his high chair boring, and he surged and squirmed in his chair; those that kept him within the bounds of a room failed to interest him during the second year. He scrambled into his crib, scaled the dresser, clambered up on a chest; he ran to the door and tried to unlock it and escape. The suitcase of toys that kept him indoors for an extra half hour did not amuse him at 2 1/2 years, and he sulked at not being allowed to go outside. By 3 years, however, his love of activity, though still strong, did not exclude the quieter pursuits of looking at pictures and playing with small toys, and he enjoyed the test. At these ages he asked to escort the examiner to her car, carrying the kit as his brother had done at the same age.

MATTHEW WILEY. — The Wileys are not a faculty family, but they live in one of the faculty residence dis-

tricts and have many friends among the academic group. Mr. Wiley was trained as an engineer and then joined his father in business. One of his hobbies in addition to golf and football is citizens' military training, and he goes off to camp instead of on a fishing trip in summer.

Mrs. Wiley is a pleasant, energetic young matron who keeps up a rather active social life in addition to doing most of her own housework and caring for her children. She belongs to a study club and is a worker in various church groups. She is casual and matter of fact in her attitude toward the children. She does not worry over trifles or make herself a slave to the nonessential elements in child care. When it is necessary to discipline her children she reasons in calm but serious tones, neither minimizing nor overemphasizing their misdeemeanor. Her manner and attitude toward them exemplify the practices most strongly advised by experts in child rearing.

Dolores, the other child in the family, was 3 at Matthew's birth. She is a pretty, curly-haired little girl, fond of playing with a neighbor child more than a year older but fairly contented to come inside and play alone in the house when her mother decides she has had enough companionship for the day. She enjoyed watching the examiners but seldom bothered them. She played nicely with Matthew in his babyhood, handing him toys and playing peek. When he reached the creeping and walking stage, however, Dolores sometimes had to flee to her mother for protection from his too rough embraces and boisterous play.

There are three outstanding features in Matthew's behavior: his fondness for music, his delight in motor and manipulative activities, and his high temper. In-

terest and attention to music began before the 3rd month; for the examiner's benefit his mother now and then demonstrated its soothing effect on him by turning on the radio or victrola when he was fussy. At 2 1/2 and 3 1/2 years he returned to the toy accordion again and again, and his mother reported that he still liked music.

For strenuous motor activity Matthew is a close second to Martin. "Oh, he's all boy," Mrs. Wiley frequently said. At 3 1/2 he walked upstairs on his hands, his mother holding his feet, wheelbarrow fashion. Fine motor skill began with his fumbling manipulation of a clothespin at 10 weeks and continued to be one of his major interests. At 3 1/2 he ran all the household electrical appliances and ironed the handkerchiefs and napkins on the mangle, Mrs. Wiley reported.

In outbursts of temper he greatly resembles Virginia Ruth and Maurice. His screaming at the measurements seemed to be largely rage rather than fear, and his mother held him when necessary and made him go through with them. Finally in his second year he became so resistant that the measurements had to be discontinued. Like Virginia Ruth and Maurice he often escaped from the examiners and crept to the kitchen with a toy. At 2 1/2 he shouted "No, no, no," when his sister picked up the toy telephone. Later, after the test was over and S and his mother were talking, he heard the grocery boy come. He went to the kitchen and came back with a loaf of bread and a head of cabbage. He proceeded to drop the bread on the floor and kick it in play. His mother remonstrated, "Why, Matthew, that's no way to treat the bread. Pick it up." "No," he cried angrily, "I won't," and he jumped on the bread. When his mother took it away from him he threw himself on the floor in a fit of temper. He was

selfish at this age, his mother reported; and again when he was 3 1/2 she said, "Matthew is selfish with everything but his food." When at this examination he brought his toy train to show to S his mother predicted that there would be a temper tantrum before he got the track put together, and he did have a slight outburst when the cars did not work. He also had a squabble with Dolores over the tractor.

As he grew older he gradually got his temper in hand and became easier to handle. He was meticulous about putting things away in their right places, his mother said; and at 3 1/2 he picked up blocks and cleared out a space large enough for his long sections of trackage.

VIRGINIA RUTH WHITLOCK. — The Whitlocks also are a professor's family. Since his undergraduate days Dr. Whitlock has been the recipient of international academic honors and now is a recognized authority in his field. He is a scholarly gentleman, seriously devoted to his work and to his family. Autumn Saturday afternoons find the Whitlocks driving along country roads rather than watching the football games. His love for his little daughters contains a note of pride and almost of wonderment. His tenderness toward them makes him particularly sensitive to all their griefs and pains, and the sound of his baby's cry genuinely distresses him. His love for Virginia Ruth and his pride in her is illustrated by a snatch of conversation with the examiner, whom he chanced to meet on the campus one morning when the baby was about 18 months old. "Well, what do you psychologists really think of my little girl?" "Oh, she's an independent little piece, with a mind of her own — and a good one. And she's growing prettier every day, don't you think?" "Yes, I do. But a proud father is a prejudiced judge."

Mrs. Whitlock is a sprightly young matron whose career as an architect and interior decorator has been somewhat interfered with by wifehood and motherhood. Nevertheless she has applied her professional knowledge in making her own home attractive, and she manages to carry on a little business and keep up her interest in art on the side. From her occasional references to her girlhood one glimpses her as a harum-scarum tomboy of two decades ago whose athletic feats and daring escapades scandalized her mother's neighbors. Among her faculty friends she is regarded as a radical "pink." As a sophisticated modern she is naturally skeptical of the "maternal instinct" as a guide in child training, and although she loves her children dearly she is often frankly nonplussed by them.

Marcia, the eldest, was 5 years old at Virginia Ruth's birth, a bright, inquiring youngster with a wide range of information as measured by a kindergarten test. She is active and agile; she turns somersaults and handsprings all over the lawn. The playmates whom she brought home from school the first year were always boys; other little girls just did not register in her social world, although at home she played nicely with her younger sisters. She stands in no awe of her elders. Without being bumptious she simply treats them as her equals and contemporaries. "You should hear Marcia argue with her father," Mrs. Whitlock said when Marcia was about 6 1/2. "When he expresses an opinion or sounds a warning I feel I should listen and defer to him, because I have great respect for his intelligence and I think he's usually right. But not Marcia. She comes back with a flat refusal or a counter-argument that leaves me quite aghast." Sometimes she interfered with the examinations and rudely refused to obey her moth-

er's injunction to keep quiet and let things alone; but one day in her sixth year, when her mother was out for the afternoon, she received the examiners and played the gracious and attentive hostess quite as her mother would have done. At 8 she spent the summer on her grandmother's farm, where she delighted in riding the horses and in helping with the farm work.

Nancy, the second child, is two and a half years older than Virginia Ruth. She is a sweet child who talks in a gentle, musical voice and is usually serene and unruffled. On occasions, however, she can be "just plain mulish," as her mother puts it. She entered the nursery school at 3. During the first year she was considered a difficult child to handle. She disliked leaving home in the morning, she did not get along particularly well with the nursery school children, and she sought the teacher for comfort at every minor bruise and bump. Moreover, she shrank from being undressed for the monthly physical examination, was often negativistic and sulky, and often refused her food. Hence her first year of nursery school was not a happy one for her. In the second, however, she recovered her gentle equanimity, was particularly interested and sensitive to music and stories, and was a brilliant conversationist for her years. Since it was the intellectual rather than the social life of the nursery school that she enjoyed, kindergarten was more delightful to her, for there she had an opportunity to work independently and to receive the intellectual stimulation of the group without having to make such great social adjustments.

She is particularly attached to her father. When in her sixth year he went abroad for six months' research, she was inconsolably lonely and sometimes threw herself on his bed in a fit of sobbing. "But Nancy, dear,"

her mother comforted her, "of course you miss Daddy, but you mustn't grieve so. You should be proud because Daddy is so famous. He didn't go because he wanted to leave us but because people asked him to go and find out things for them." This consoled the child, but a few days later she came home from school in tears. "Mother, Jimmy says his father is famouser than ours," she wailed. "It isn't true, it isn't true!"

Virginia Ruth first voiced her independence in the hospital. She screamed at being picked up and changed; she screamed at being left alone. The nurses soon discovered that she was a conscientious objector and left her to "cry it out" after they had assured themselves that she needed no attention. Mrs. Whitlock, however, had difficulty in applying such disciplinary measures in the home. In the first place Virginia Ruth's loudest protests were raised to the routine bathing, changing, and dressing processes that could not be eliminated. In the second, Professor Whitlock's conviction that the baby cried only when she suffered and his vicarious suffering for her naturally made the mother go to great lengths to forestall the infant's raucous yells. Her irritability at the physical and psychological examinations was not, therefore, an exception to her usual behavior. As the storm was usually precipitated by handling or undressing the baby, it is possible that a mild yet stubbornly persistent case of eczema made her skin particularly tender and sensitive. Other babies similarly troubled with eczema did not, however, struggle violently against physical care.

When Virginia Ruth was about 7 months old, two older sisters of Mrs. Whitlock who had children of their own came for a few days' visit. "Annette isn't firm enough with that baby," they remarked confidentially

to the examiners. "There's no sense in her having a battle every night to get that child to bed. Virginia Ruth knows she has her mother cowed. I'd soon show the young lady who was boss." The examiners smiled discreetly and made a noncommittal reply, for their acquaintance with Virginia Ruth made them more appreciative of her mother's problem and less confident of the ease of the baby's subjugation.

But the cloud had a silver lining. As soon as Virginia Ruth achieved the independence of locomotion she became an amiable child. In fact she even became affectionate. "Why, she often comes running to me and throws her arms around my neck and loves me," her mother said, and Dr. Boyd received an occasional embrace. But being embraced herself was a different matter to Virginia Ruth; if it was not of her own choosing she squirmed and wriggled away. Once when her mother asked for a kiss she refused but brought the brush and comb, as though willing to make some concession.

She was not only independent but intrepid. She climbed and jumped with no show of fear and with no caution. In consequence she suffered two broken arms before she was 2 years old. "It's a great wonder to me she doesn't break her neck," was her uncle's comment when he saw her swinging on limbs of trees and scrambling over rocks at their lake home.

Her aversion to being handled perhaps was a benefit in the matter of self help. Her mother reported when she was 3 years old, "Virginia Ruth dresses herself now. She sometimes comes down to breakfast looking like the devil's own rag baby, but she has made a noble effort." Tidiness, it must be admitted, was not one of her strong points. "Of course Mrs. Whitlock sends her to school

clean in the morning," a nursery school teacher once remarked, "but by ten o'clock you'd never know it!"

At nursery school she went through a cycle of development very similar to Nancy's. The teachers reported that she was a home-loving child, that she objected violently to the physical examination, that she shrieked equally hard at a minor scratch and a serious tumble, that she often sought the teachers for comfort and frequently flung her arms affectionately about their knees, and that she played little with the other children. Systematic observations of social behavior kept during her fifth year by Green (7) showed her to be the least social child in her age group. She enjoyed drawing, and her horses and elephants were on display as the best products of the nursery school artists.

Virginia Ruth's strong-willed independence, great physical activity, distaste for physical contacts, lack of interest in social contacts, failure to amalgamate with the group, intellectual interests and artistic skill, and strong attachment to her family, are traits in keeping with those of her parents and sisters.

MAURICE BOATMAN. — The Boatmans are a Jewish family. Mr. Boatman is Russian-born and one of his sisters still lives in Russia. Artistic ability runs in the family. His father was a memorial craftsman, his brother is a portrait painter, and a sister who is a dressmaker is particularly clever at designing frocks. Mr. Boatman, like his father, is a marble dealer and memorial craftsman. His work necessitates considerable knowledge of Hebrew and ability to translate into it, since all the inscriptions are engraved in the classical tongue. He appreciates and values beautiful things, and in his home is an exquisite marble mosaic, as well as lovely vases, clocks, and statuettes, selected with his unerring good

judgment. He has a large share of "artistic temperament" and is subject to cyclic periods of euphoria and depression that his wife finds hard to dispel. Toward the examiners he is friendly. He was particularly interested one day in having the opinion of the Institute technician on a fine camera that he had picked up at second hand.

Mrs. Boatman is a warm, whole-souled person with strongly intellectual interests. She was a medical social worker in New York before her marriage, and she makes a heroic effort to keep abreast of the times in the medical and social fields. Her generous heart goes out to anyone in need or distress. She once sheltered in her home a friendless young book saleswoman who had aroused her sympathy, and another time she took in the sister of her maid. She is extremely hospitable, and when the examiners were there around mealtime she, like Mrs. Thompson, always gave them an invitation to lunch. "Even if I've only crackers and milk and fruit for lunch, do stay. No, I won't bother. If it was a bother I wouldn't ask you," she would urge. She bolsters up her husband in his fits of gloom and actively helps him with the salesmanship and bookkeeping in his business. In addition to spending much of her time at his office she superintends her household, does much of the family cooking, and takes an active part in the religious and social life of her community. Her children's happiness and welfare are paramount with her and she gives them much of her tireless energy.

The parents lavish upon each other and upon their children an intense love, and the whole family lives at high emotional pitch. There is nothing casual or detached in their attitude toward their children. Their policy in training and disciplining, occasionally erratic

and usually lenient, is always kindly and sincere and never harsh nor unjust.

In marked contrast to the ardent parents was the calm, phlegmatic Scandinavian maid, Olga, who served the family until Maurice's third year. She was a rare find as a domestic servant — a girl of intelligence and practical good sense. Since Mrs. Boatman was away much of the day the children were under her care a great deal. She is extremely fond of all of them and was particularly devoted to baby Maurice; they in turn are much attached to her. She reproved the children when necessary with a quiet firmness that invited no argument and met with a willing compliance. Her calmness toward the children nicely balanced the fervor of their parents. After she married and went to live on a farm, she sometimes came for a week's visit to the family, and she kept the children on the farm as paying boarders during the summer, a vacation that the mother had wisely planned as better than camp for them, and one that they thoroughly enjoyed and talked about all winter.

Zita, the eldest child, was past 7 at Maurice's birth. She is a wiry, active child. She is bright and takes great interest in school and enjoys reading. Like Margaret Ruger she wanted to help her mother with the record-keeping.

Sterling was 4 1/2 at the beginning of the study. He was sometimes morose and stubborn and later when he entered school the teacher found him somewhat difficult to handle. In contrast to his sister Zita he had learned to talk late; he had said very little until he was 3, and his speech was somewhat incomprehensible even at 5. He and S formed a friendship after the first few weeks, and although he liked to ransack their kit, the examiners

had little difficulty in getting him to mind. He seemed to enjoy their visits because they paid attention to him and did not ignore his comments.

Arlene is just two years older than Maurice. She was a ubiquitous midget who trotted in and out at the examinations, often wanting to "love" the baby in the midst of a test and trying to "help" by bringing other toys to him. Her mother always said, "Arlene is just like a little old woman. She always wants to help me with everything I do and she begs to hold and take care of the baby." In a movie taken when Maurice was aged 34 weeks she is to be seen officiously "fetching" and "helping" in the examination.

Maurice's development was very rapid in the early weeks, then he became somewhat bored by the tests and was frequently irritable. His behavior went through a course very similar to that of Virginia Ruth. From irritability he passed to the escape stage as soon as he had achieved independent locomotion; and he persisted in running away from the examiner at 3 years. Because of his strenuous objections B gave up the measurements during his third year. When she resumed them at 3 he not only was a willing subject but actively cooperated by learning the order of the measures and by voluntarily taking the necessary positions for them. Like Virginia Ruth he was strongly possessive and never wanted to give back the toys that the examiners had given him to play with. Like Sterling he did not talk until about 3 years old. Thereafter he was very cooperative both at the speech test and at the mental examinations and was up to his age level in performance. In early babyhood his mother laughingly called him her ugly duckling, saying that her other children had been much prettier as babies; but by 6 months he was a beautiful baby, and

at 2 he was a sturdy, handsome little fellow. The mental examiner commented to S on his willing and gentlemanly behavior at his 4 1/2-year test.

CAROL RUGER. — A few months before Carol's birth Mr. Ruger, to whom home construction is not only business but a hobby, built a new house for his family — a Dutch colonial cottage pleasantly located in one of the outlying residential districts. The equipping of this house with the most up-to-date heating, refrigerating, and ventilating systems gave him scope for his ideas and ideals in residential building and provided his family with a home that epitomized suburban comfort. Although friendly, he is quiet-mannered and reserved. When the examiners were invited to dinner and when on other occasions he happened to be at home during their calls he conversed freely on general topics and controlled his children with a serious word or grave look.

Mrs. Ruger, jet-black haired, blue eyed, and blooming, is more vivacious and talkative and less retiring than her husband. An efficient housekeeper, she does all her work unaided. Litter and disorder are utterly foreign to her house. Her neighbors often envy her because, in their opinion, Mr. Ruger doesn't track in a spoonful of dirt in a year. Even the children, although they play all over the house, are good at keeping their toys in their play room or in the corner of the dining room allotted to them. She manages the children, who are quiet and docile, with the same ease and efficiency with which she superintends the household routine, and she inculcates in them the friendly hospitality so characteristic of her. At every third or fourth visit Margaret or little Ben brought in a plate of fudge, glasses of grape juice, cups of steaming chocolate, or a basket of fruit, and Mrs. Ruger had the examiners sit down for a

friendly chat over the refreshments before they went on to their next call.

Margaret, a child of 9 at Carol's birth, shares her father's reserve. She loved to help take care of the baby and begged to be allowed to keep records of Carol's progress as her mother did. She therefore planned a little experiment for her to carry out with a series of colored wooden rings, and with her mother's help she painstakingly filled in the calendar-like sheet for thirty days. As Carol grew older Margie taught her rhymes, and sewed for her doll, and was a devoted elder sister.

Benny, only eighteen months older than Carol, is a pale, frail looking child, in spite of his mother's determined efforts to bring his weight up to standard by proper care and feeding. He is active, however, and suffers no more illnesses than other children. He is meek and timid with strangers, and although he is friendly with the examiners and enjoys watching, talking, and playing with them, he never touches an instrument or toy unless they offer it to him or give him permission.

Carol seems to have been born neat. In the first two weeks, clad only in a hospital diaper, she somehow achieved that "fresh-from-a-bandbox" appearance that many people struggle for in vain; whereas Virginia Ruth, born in the same hospital and cared for by the same nurses, looked frowsy and sloppy. In the early weeks Carol screamed almost as loudly as Virginia Ruth at the measuring process. There may have been an element of conditioned fear in her dislike for it, since at her 4th week the measuring board, which had been placed on the radiator to warm, fell to the floor with a clatter that set the baby shrieking and brought her mother bounding upstairs to see what was the trouble.

After 4 months she became docile at the measurements, and she thoroughly enjoyed the psychological examinations. Distaste for the measurements appeared again early in the second year; Mrs. Ruger thought she disliked having her clothes removed. It was usually conquered with a little persuasion, although her mother often held her on her lap. Whooping cough interrupted the visits at 78 weeks and they were not resumed until 104 weeks. At that time Carol was definitely timid and tried to avoid the examiners, although she became friendly after a half hour. Subsequently the examiners had to allow her time to become reacquainted and friendly before beginning her examination. She grew rapidly and sturdily; by the time she was 2 she was almost Benny's equal in weight, and at 4 she was so tall for her years and her quiet manners were so like her sister's that she seemed very grown up.

QUENTIN REINKE. — The Reinkes are a family of German descent. Mr. Reinke was the only boy in a large family of girls. Tall, auburn-haired, well built, he might well be a dominating figure in any group. But despite his place of vantage in his family, his fine physique, and his dignified bearing, he is painfully shy. Usually when he was at home during the examiners' visits he did not come into the room. Once when they arrived unexpectedly on a holiday they found him painting the walls of the dining room; he stammered an acknowledgment of his wife's introductions with almost adolescent lack of poise. His education had been interrupted in high school and after a year of technical training he had become a skilled machinist.

With their children's future in view the Reinkes have built a trim cottage in a modest new residential district. It looks out upon open fields, wood, and river and is

within a few blocks of school, church, park, and playground.

Mrs. Reinke is a tall, gentle, retiring woman, but she is friendly and cooperative with the examiners and discusses her personal problems freely with them. She herself is musical, and so are all her brothers and sisters. Before her marriage she held a clerical job and also gave music lessons. She still has a few piano pupils and assists in musical programs in her church. When the family began to feel the economic depression in 1931-32 she went back to her clerical position and left the little boys in charge of her mother.

The grandmother, a frail, delicately withered woman of perhaps eighty years, is amazingly spry and active; she performs the household tasks and manages the children with efficiency and with little worry. She, like her daughter, is retiring, and she seemed surprised when the examiners remembered and greeted her by name after their first introduction.

Daniel is only eighteen months older than Quentin. He liked to sit quietly watching the examiners as they worked. He never touched their implements or toys unless they were offered him, and not until the middle of his second year, after a year in which to get acquainted, were they able to draw him into speech. He enjoyed their coming and waved good-bye and looked after them as they left, but he remained timid and withdrawn in their presence. While S was giving Quentin the speech test at 4 years, Daniel came home from kindergarten with his first report card. His mother slipped it out of the envelope, glanced at it, and handed it to S. On it the teacher had written the significant comment "Is shy." At this time, however, the examiner noticed that he greeted her with considerable *savoir*

faire and talked more freely than ever before. The school was beginning to exert its socializing influence.

Quentin's cry during the hospital period had a plaintive, querulous note that presented a striking contrast to Virginia Ruth's belligerent yells and Max's hoarse, gruff croaks. Not only the examiners but the nurses as well noticed the difference. Although he was a rather thin and rangy baby, he was healthy and normal in every respect. Timidity was shown in his reactions to the tests, but a slow smile of recognition and friendly greeting spread over his face at the examiners' arrival and he watched them happily throughout the examination. At 2 1/2 his hesitation over taking the examiner's toys seemed to be a waiting for permission. His many "no's" of refusal to call up his grandmother over the telephone or do other things his mother suggested were never emphatic or petulant, but were uttered in a quiet tone that left no doubt that he meant them. His shy and retiring nature, his motor and manipulative skill, and his social interest in persons whom he knows and trusts are all in keeping with the traits shown by his family.

JAMES DALTON VAILE. — The Vailes are a happy sociable young couple who have bought a home in one of the city's smart new residential districts. Mr. Vaile is a radio broker and salesman, but he is greatly interested also in electricity and mechanics. His favorite sport is golf and he enjoys football as a spectator. His two sons are his pride and joy. The examiners once remarked, "I suppose you would have preferred your second child to be a girl." "Oh, no," Mrs. Vaile replied, "my husband had his heart set on having two sons, and he can hardly wait till they are old enough to go with him on camping and fishing trips."

Mrs. Vaile is a frail little woman who suffers from arthritis much of the time. It was often impossible for her to lift or care for her babies. The plucky good sportsmanship with which she bears this semi-invalidism won the examiners' admiration. With the help of a competent maid she runs her household efficiently; and she makes the effort to go out with her husband to parties and dances and to entertain friends in their own home quite as if she were robust. "Mother thinks I'm foolish to go as much as I do; she often scolds and says, 'Why on earth don't you stay home and rest?' But, as I tell her, I don't feel a bit worse when I go out than when I stay at home, not so bad in fact, for it takes my mind off my troubles. And there's no point in sitting in the chimney corner like an old woman. I'll probably be this way all my life, and I might as well enjoy things as I go. Besides, it wouldn't be fair to Mr. Vaile to make him stay home with a rheumatic wife, and thus cut him as well as me off from all our friends. I never had it until before Robert was born, and the doctor thinks pregnancy may aggravate it. But I must have my babies, so there's nothing to be done about it." Thus runs her philosophy. Before her marriage she did journalistic work, but she gave up her career apparently with no regrets.

Robert is eighteen months older than Jimmy. When the visits began he was a toddler with a propensity for getting into the kitchen cupboards and pulling out all the pots and pans. He never meddled with the examiners' kit, and he usually retreated to the kitchen of his own accord upon the doctors' arrival. There he pottered around after his dear friend Norma, the maid, and did not return unless he was summoned. He was a little slow in talking and even at 5 years did not pronounce

his words plainly. His parents were concerned over his difficulty with speech, and in order to encourage him to pronounce plainly they refused to understand him and made him repeat two or three times. His inability to make himself understood seemed to make him withdraw into himself and avoid speech as much as possible. When he did talk, however, the content of his speech indicated memory and attention to details. The spring he was 3 1/2 his parents were puzzled by a request that they finally translated as "Daddy, make rain in Grandpa's yard." At last his grandmother remembered his liking for the lawn spray the summer before, and she had the hose brought and started the sprinkler, to his delighted satisfaction.

Jimmy was the least irritable baby of the group; from birth he has been tractable and pleasantly cooperative at the tests. At manipulative tests he is very good but he has difficulty with his speech. He has never been a shy child, and although he does not play for the attention of adults as Don and Harvey do, he greets the examiners with a pleased little smile. When Jimmy was 3 1/2 a baby sister was born. Both Robert and Jimmy were devoted to the baby and hung over her crib and fondled her with great pleasure. From the time James was able to walk he has been Robert's playmate and companion, and the two get along amicably together.

DAVID SHEPPARD. — Mr. Sheppard is an attorney who has entered the field of politics. A tall, dignified man with a fine voice and a strong personality, he has the qualifications for cutting a figure in public life. He is David's particular pal and playfellow. "My husband has a notion that I neglect David for Gordon," Mrs. Sheppard said laughingly one day in David's second year. "How he got that amusing idea I don't

know. But anyway he hopes to counteract my neglect by his attention to David."

Mrs. Sheppard is a pleasant, cheery, patient little woman who is deferential toward her husband and her sister-in-law neighbor; but in the matter of bringing up her children she manages to give the impression of yielding to their opinions without actually deflecting one jot from the course she has chosen to steer. For instance, she serenely carried through the infant study in spite of her husband's early objection to it on the grounds that the examination upset little David and that the record-keeping entailed unnecessary work for her. After two or three weeks his prejudice wore off and he was cordial to the examiners. The children come first in Mrs. Sheppard's life; she spent much of her time during their first two years caring for and amusing them. When they reached nursery school age she wanted them to have the school experience, and since they live outside the zone in which the little pupils are called for and delivered, she brings the boys promptly each morning and calls for them each evening.

Since Gordon is only thirteen months older than David, the examiners were able to watch him throughout his second year of development. In order to keep him quiet and amused while the examiners were busy with David, his mother often held him on her lap and showed him a picture book. "Wha's that?" he would ask. "That's a horsey," his mother would answer. "Hunh?" he queried in an upward-gliding tone. "That's a horsey." "Horsey?" he would repeat with the rising inflection of the question. For picture after picture the dialogue was reiterated, always in the same musical tones, first the question as to what the picture represented, then the grunted query, then a questioning repe-

tition of the name. Similarly he asked the examiners about the contents of their kit: "Wha's that?" "A stethoscope." "Hunh?" "It's a stethoscope." "'Teth-'cope?" The measuring process interested him, and one day he ran to his mother to show her a pair of nut-crackers, calling, "Mamma, Doc Boy', Doc Boy'." He talked early and very comprehensibly, but upward-gliding questions and repetition of the answer in the same tones always figured largely in his speech. He usually watched the examination and sometimes found it hard to refrain from taking the toys. One day when he was only a little past 2 he spied the ball in the examiners' box. "Oh, the pretty red ball," he cried. "Mamma, I want it, I want it."

At his earliest measurements David was very irritable, but before 3 months he was affable. His response to the psychological examinations was excellent and he was in the vanguard of the group in reaching and creeping. The excerpts from his speech given in Chapter V show its similarity to Gordon's.

A third baby, Henry, was born when David was 22 months old. Since Gordon and David entered nursery school shortly after Henry's birth, the examiners were little acquainted with this baby in his first two years. Mrs. Sheppard reported from time to time that he was a sturdy, rough-and-tumble baby, quite equal to holding his own with his brothers.

All three boys went to nursery school. Indeed, one summer all three attended together, a record for one family. Gordon then graduated to kindergarten and David and Henry were left in school. "The Sheppard boys have a regular cycle that they go through," a nursery school teacher once told the author. "When they are two they run around knocking the little girls

down. They don't mean to be rough; it is their way of playing. But nevertheless it presents a problem. Then they go through a stage of absent-mindedness. They don't pay a bit of attention to what you say but stand looking into space, and if they do hear, all they answer is 'Hunh?' I'll say, 'Henry, put your hat on.' 'Hunh?' 'I said, put your hat on.' 'Hat on?' is Henry's comeback in that singing questioning tone. When they are about four they get over their absent-mindedness and become easy to handle. At least Gordon did, and David has just reached that stage, so I've hopes that Henry will get there in due time."

Dawe (4) in her study of children's quarrels noted that Henry, who was only 2, started several quarrels by playfully pushing another child over, but that he remained quite passive if the child struck back.

These three brothers, so close in age, present a rare opportunity for studying the development of siblings. Gordon and David at 3 1/2 and 2 1/2 looked so much alike that they might almost have passed for twins. The striking similarity of the three in speech and behavior may be partly explained by the fact that they were close enough in age for the younger ones to have adopted their habits and mannerisms. It seems more probable that similar heredities launched the little boys on similar cycles of development, and that the environment, which was almost identical for the three, made them converge into what was virtually a single path instead of diverging along three different ones.

HARVEY STEWART. — In the early years of his married life Mr. Stewart was a superintendent and engineer for a lumbering company, and he and his young wife and infant son lived for a time amid the isolated and primitive conditions of a lumbering camp. Later he went into business in the city. His attitude toward his

wife combines gratitude with devotion, and he is her willing servitor. The birth of a second son he seemed to take as a beneficence more marvelous than he deserved, and for this completion of his happiness he tenders her the utmost attention and courtesy and lavishes upon his little son a proud and indulgent love. His manner is cordial and obliging and he evinces genuine friendliness toward the examiners and interest in their work.

Mrs. Stewart is not a woman to discourage her husband's devotion. Indeed, she appreciates and enjoys being regarded with an almost worshipful awe and is perfectly aware that she has helped to engender this attitude. But she honestly feels that the cares and worries of motherhood are so great that it deserves all the praise and glorification society accords it, and that husbands truly owe their wives a great deal for the gift of children. She is an oversolicitous mother, deeply concerned for the welfare of her children, particularly in their early years. She attended personally to every detail of Harvey's care and worried more than was necessary over his sleepless nights and his minor illnesses in babyhood.

Motherhood and household duties do not, however, prevent her from having many outside interests and activities. She was graduated from a woman's college in the East, where she was an excellent student and showed talent in aesthetic dancing, and she keeps up her music and to some extent her dancing in her leisure hours. She also tries her hand at verse occasionally. In addition she keeps in touch with her college alumnae group and with club work. In winter she puts on her outdoor togs and goes skating with her husband and elder son. On the whole, she leads a very active, useful, and happy life.

Ted, the elder son, is fourteen years older than Harvey. He was usually at school during the examiners' visits but when he was home he greeted them and talked to them without the bashful reticence so common in adolescent youths. Toward his mother he shows an attitude of deference and chivalrous devotion not unlike his father's. He is courteous and helpful; he does many chores to spare her and performs thoughtful little services for her graciously and without prompting.

In a household of three adults baby Harvey was the center of family interest and attention. Within a few weeks he himself recognized this, and he loved it. He was a healthy, happy, smiling baby who soon learned to do little tricks to get attention. Most of these were cunning and amusing, but some were alarming to his mother. His early habit of waking up and cooing in the night distressed her, for she thought he did not get enough sleep. At about 6 months old he invented a game of spitting on his high chair tray and smearing the viscous drops around with his finger, a habit that naturally offended his mother's fastidiousness; and at 2 years he made a practice of sputtering and spitting at persons, perhaps partly as a way of concealing his slight shyness. It was his way of expressing nonchalance.

From early infancy, when he hit upon the scheme of staying awake as an attention-getting device, to his third and fourth years, he utilized his mother's solicitude for his welfare to gain his own ends. He vaguely knew that within certain limits he could get his own way with her. But Mrs. Stewart is by no means a vacillating or yielding woman; at a certain point she sets her foot down, and then Harvey has to give in. Before the age of 2 he apparently was able to recognize when she really "meant business"; thus he adjusted rapidly to

her training and discipline. The example cited in Volume II, Chapter VI, illustrates this point. His interplay with his mother is further illustrated by his asking, "Mother, do you like this?" after scattering his toys. Another time, when he was 4, his mother was going away for the day and was giving him instructions. "Will you be a good boy while Mother is gone?" she asked. "Yes," he promised. "And when you get home from nursery school will you wash your hands and face before you eat lunch, and then again after you eat your lunch, before you go out to play?" "No, Mother," he replied frankly, "that is too much."

At 3 1/2 he played well with children in the neighborhood; he also invented an imaginary playmate, a baby whom he played with and took for imaginary rides. Interest in mechanical devices began to come out at this age. He liked tools, and he crammed pieces of wire, screws, taps, washers, and other bits of hardware into his pockets and called them tools. One day at this age when he was out helping his mother plant flowers he picked up an angleworm, stretched it out, and said, "Look, Mother, it's a garter worm."

His attempts to draw the examiners' attention by running away and hiding, which began late in the second year, persisted. At 3 1/2 he ran into another room at S's arrival, evidently expecting her to chase him for a romp. This was his usual greeting to Dr. Boyd on her visits. He is never shy, and his proclivity for hiding is an expression of coyness rather than timidity.

LAWRENCE BARLOW. — The Barlows have a large home on one of the older residence streets. Dr. Barlow was a young army surgeon just out of medical school during the war, after which he became a practicing physician in Minneapolis. He is particularly friendly

with the examiners and expresses interest in the study from a professional point of view. On occasions when he was at home he and B have enjoyed chatting on medical subjects. He is always meticulously groomed, and his wife laughingly says that "He always folds his bath towel neatly and hangs it on the rack, and I never have to pick up after him or straighten out his bureau drawers. The boys are just like him in that respect, and how I wish Bea were!"

Before her marriage Mrs. Barlow was a musician and once traveled on a Chautauqua circuit. She still sings and plays for her own amusement and takes part in musical work in her church. She is extremely active; she works with tense energy, directing and running her large household and participating in church and community affairs as well. About a year before Larry's birth her husband's sister died and left two small children. That they might not be without a mother's care nor separated from their father, she and Dr. Barlow made room for the children and their father in their home. Between these children and her own she made no distinction and showed no favoritism but managed and cared for them all with impartial affection. When she made a new Easter frock and coat for her 8-year-old daughter, Beatrice, she also made a new outfit for her 8-year-old niece, Mary Jean. The two families lived together for more than a year before the brother-in-law married again and established a new home.

During Larry's third year Mrs. Barlow underwent a thyroidectomy. This fact suggests that her tireless energy and nervous tension were in part a function of excess thyroid secretion. She did not allow this energy to dissipate itself in useless fuss and worry, however, but harnessed it for the performance of her manifold duties.

Beatrice, who was 8 at Larry's birth, is active and energetic like her mother. She makes rapid progress at school, and is very fond of reading. She shows considerable interest in and talent for drawing, painting, and artistic handicraft. Her parents sometimes have been concerned over her displays of temperament and moodiness. Mary Jean Patton, the cousin who is Beatrice's age, is a more placid child, quiet and even-tempered. She was less fond of reading than Beatrice, who often read aloud to her; but she liked arithmetic much better and handled figures well, Mrs. Barlow reported.

Wilbur Patton, Mary Jean's 5-year-old brother, was a gentle, sensitive little boy. He was somewhat left out of the play group by his older sister and cousin, and he was a little too old to play with his younger cousin John. He enjoyed baby Larry, and often amused him and talked to him.

John Barlow is only twenty months older than Larry. He was a chubby, affable baby, just overcoming the awkwardness of first finding his legs, when the examiners began their visits. He used to beam his welcome upon their arrival, and he toddled after them, calling "Bye," and stood at the window waving as they drove away. He, too, is sunny, cheerful, placid, and even tempered. He talked well, and he resembled Larry in his interest in music.

All the children adored the baby, often came to the room to laugh and play with him, enjoyed watching the examiners and sometimes interrupted a test with their efforts to make the baby smile or display a new trick they had taught him. The little girls sometimes helped in checking the records, or said, "Let me tell you what a cute thing Larry did the other day," and went on to describe a bit of behavior they had observed. In such a

large and active houseful of adults and children Larry quite naturally did not hold the center of the stage. He merely received his just share of loving care and attention.

Delicate skill in fine motor performance appeared rather early in Larry; at 13 weeks he grasped the toys presented to him, and in his 14th week, when his mother left him near the head of the bed and an unfinished evening gown near the foot, she returned to find him chewing up a pink silk ruffle. In his second year he manipulated pegs and blocks with nicety and precision. His penchant for neatness and order came out in other ways. At 70 weeks, as he was scuttling after the ball as it rolled toward the davenport, he turned up a corner of the rug. Immediately he turned around, flipped the rug back into place, gave it a finishing pat, and then continued his pursuit of the ball. At about the same age his mother reported that he had to have his pillow patted and fixed just so before he would lie down to sleep at night. At 3 1/2 years his mother said he was a careful, tidy child.

In locomotion Larry was behind the other children of the group. His muscle tone was apparently lower than that of other babies except Edith Ann; in both these babies the various stages of motor development were delayed for a time and then put in their appearance suddenly.

Intellectually Larry is alert and eager. His performance at the tests and his subsequent mental examinations were consistently good. After his examination at 2 years he brought his mother a photograph and remarked, "Died, dead, dead." "Yes, dear," Mrs. Barlow said, "this man is dead." She then explained to the examiners that earlier in the morning 4-year-old John had asked her about this picture of a family friend and

she had told him who the man was and that he was dead. She had not mentioned the matter to Larry but he had overheard the conversation. When he was 3 1/2 Mrs. Barlow reported that a few days before Larry had come to her and said, "Mother, you had three of these cards the other day, didn't you. And then you gave one away, and then you had two, didn't you." "I was amused that he had reached the subtraction stage," his mother concluded.

He is friendly and sociable but not in the least forward. At 4 years he could carry a tune well for his age and was not reticent about performing before company.

SIBYL ATWOOD. — The Atwoods are a civic-minded family. The recreation room of their gracious home is now the meeting place for a ward political caucus, now a clubhouse for the Brownies (junior Girl Scouts), now the committee room for the local P. T. A., and now a nursery school for Sibyl and other children in the neighborhood. The Atwoods have intellectual tastes also; their bookshelves and tables are always stocked with new books and the better current magazines, including magazines for children.

Mr. Atwood is an engineer. Although he is modest and unassuming, he converses easily on a wide range of topics. Once when the examiners had been invited to Sunday dinner he and S were commenting on Sibyl's efforts to do everything her older sisters did. "I can easily sympathize with her," Mr. Atwood remarked. "I was the baby of the family myself. My brother and sisters still think of me as the 'kid brother.' But now that I have a family — none of them have children — they have begun to regard me as grown up."

Mrs. Atwood devotes a great deal of time to her children. She reads them stories, chooses good literature

for them, and gives them the best cultural advantages the city affords. When her older daughters grew old enough she became a leader in the junior Girl Scout work; and she welcomes the neighbor children to her home and sees to it that none of her little girls lacks the companionship of other children. She also works at church and club work in the city, and is particularly active in the local chapter of the A. A. U. W.

Charlotte, the eldest daughter, is six years older than Sibyl. Happy brown eyes, a tea-rose and salmon-pink complexion, and a shock of wavy mahogany-red hair, all proclaim her sanguine nature. She is a vivid little person, active and quick in her movements and talkative and gay in her social manner.

Becky was ⁴at Sibyl's birth. Gray-eyed, with straight blond hair and Dresden complexion, she is much more delicate in coloring than her sister. She differs from Charlotte as much in personality as in appearance. She is gentle and sweet, somewhat slower in her movements, and more retiring and less talkative than her sister. Both children are extremely well-mannered, and both were thrilled by the baby and liked to help their mother bathe and dress her, as well as to watch and amuse her during the examinations.

In hair and coloring Sibyl stands midway between her two sisters, and she also differs from them in disposition. Her personality can perhaps be best described by the word "sensitive" in its popular connotation. In her early hospital days she gave the examiners this impression. She would lie awake and alert during the first part of the examination, then toward the end she would begin to fuss, and finally to cry. Time and again during the first few months the examiners remarked to each other, "Sibyl will stand just so much, and then she objects."

She disliked the physical examination and measurements, but usually with the mother's help the examiners got through most of the process without her becoming upset. In the second year, however, she became progressively harder to measure, and two or three examinations were omitted. When she became old enough to talk she made it clear that having her clothes removed was the thing that distressed her. One day in her fourth year her mother was trying to allay her fears by reasoning with her: "Of course we don't take off our clothes in front of company, Sibyl, but it is all right to take them off here in the bedroom for Dr. Boyd." "But you don't take yours off, Mother," was Sibyl's irrefutable argument. This dislike for being undressed was also manifested by Carol Ruger and by Nancy and Virginia Ruth Whitlock.

Intellectual interest and eagerness, which Sibyl expressed by excited flopping of hands, were also symptoms of her sensitiveness. Early speech, high scores on the psychological examinations, and excellent records at the mental tests speak well for her native ability, which combined with the cultural stimulation she receives at home augurs academic success for her.

JUDY FISHER. — The Fishers are a home-loving pair who in Judy's fourth year bought a new house in one of the growing residence districts. Mr. Fisher, a technician in a medical supply firm, is a skilled craftsman. He and Mrs. Fisher take great pride in their new home and had great fun in converting a barren basement into a cozy recreation room, perfectly appointed with fireplace, lamps, and shelves, pool table, and tuck-away pockets for magazines, cards, and balls, and racks for fishing rods and billiard cues. Mr. Fisher is genial and talked interestedly with the examiners on the occasions when he was home.

Mrs. Fisher is a calm, quiet woman of Swedish descent. She was a stenographer and bookkeeper before her marriage. She is a competent person who does all her own housework and cares for her children, yet has considerable leisure time for friendly visiting. She talks in a pleasant, tranquil voice, and manages her children with serenity and composure. She seemed to enjoy the examiners' visits and cooperated well with them.

Madelyn, 4 years old when Judy was born, is an active little chatterbox who has always delighted in the examinations. From the time the examiners arrived till they left she would fire a steady stream of questions and comments at them. "Can I see this? What did you bring this for? Well, what is it for? How do you work it? Can I do it once? You brought lots of paper, didn't you? I haven't got no paper. I wish I had some paper. Could I have a little piece to write on? Oh, look at Judy. Isn't she cute when she smiles like that? I want to hold that tape so she can see it. After you get through can I show it to her once? Should I swing it round and round like this? See, she's looking at it. Isn't she cute? Look, she's taking hold of my finger." Thus she ran on for a half hour or more. The examiners were at a loss to explain her loquacity, for although her parents were not silent people, they were not garrulous. One time when the examiners called, however, Mr. Fisher's mother was spending the day with the family. She sent out a barrage of interested questions about the tests and interspersed comments on the baby and remarks of "Well, well, well, Ellen, you are lucky to have two doctors coming 'round to give you advice. When my babies were little I didn't have anything like that. I just brought them up in the good old-fashioned way. But they turned out pretty well at that." Thus on and on



PLATE 4. — THEIR FIRST TEA PARTY

(Irene May and Judy at 43 weeks)

Upper left. — Interested in their elders. *Upper right.* — Getting acquainted. *Lower left.* — Sharing a toy. *Lower right.* — Trading mothers. Note the social poise and friendliness of Judy in the first three pictures (right) and her serenity in the lower right picture (left) at being held by Irene May's mother. Note also Irene May's indifference to a companion of her own age in the first three pictures (left) and her genuine distress in the lower right picture (right) at seeing Judy in her own mother's arms.

she chatted. "Now you see where Madelyn gets her talkativeness!" B and S exclaimed simultaneously as they climbed into their car. Madelyn enjoyed kindergarten greatly, and she made good grades when she started to school.

Judy's personality fits in well with that of her family. From babyhood she has been one of the most social of the children; in her affable interest in people she resembles Frederick, Don, Torey, and Walley. Interested performance of the tests and early speech development gave her high scores on the examinations. She is best compared and contrasted with Sibyl. In ability the two children are much alike; both did well on the tests and both talked early. In interests, however, they differed even in babyhood, for whereas Sibyl's interests were primarily "intellectual" and expressed in attention to the toys, listening to music, and being talked to, Judy's interests were primarily "social" and expressed by cooing, babbling, smiling, and paying attention to people.

WALLEY MAUGHAN. — Mr. Maughan is a successful salesman who travels out of the city much of the time. He is a tall man, heavy-framed, athletic in build, and rugged in physique. He frequently came in during the examiners' visits and called a cheerful "Good morning, Doctors. Well, what do you think of our boy today? Pretty fine, eh? We think he is. Look at those sturdy legs. You'll be a prize fighter one of these days, won't you, old fellow? Oh, what a big boy! Give Daddy a kiss. Here, Doctor, let me carry your bag out to the car for you." He is a hearty, jovial man, very sociable and friendly.

Mrs. Maughan is a handsome woman, tall and fair in coloring; she and her husband make a striking couple. She, too, is very sociable and friendly. She does most

of her own housework but usually has a schoolgirl to help with the dishes and stay with the children when she is out. Although she is not nervous or high-strung, she is less placid than Mrs. Fisher, and sometimes when Libby was annoyingly meddlesome or noisy she would speak sharply to her. On the whole she gives her children freedom in their play, but she wisely curbs them if they begin to behave in ways that would make them little nuisances from the adult point of view.

Libby was 3 1/2 when Walley was born. Like her parents she is a tall, sturdy little blond, friendly and sociable, quite a match in size and strength for her cousin Charles, who is a year older. Since the husbands of both sisters were at home only week-ends, the two families lived together the first year of the study. Libby and Charles were excellent playmates and got along together amicably. Both enjoyed the examinations and looked on without interfering. During Walley's second year Mr. and Mrs. Maughan went away for a trip and left the children in the care of an austere middle-aged housekeeper. Mrs. Maughan had forgotten to mention the examiners' visit, and when they arrived with their kit and asked to see the baby she mistook them for agents. She was about to close the door when Libby, who was not yet 5, came running to peek at the strangers. "Hello, Dr. Boyds and Dr. Shirley," she greeted them, and turning to the housekeeper she explained, "It's two doctors from the University. They always come to see Walley." Her evident familiarity with the examiners allayed the housekeeper's suspicions and she admitted them with apologies. Libby was greatly attached to Walley, and made such remarks as "Oh, Brother is so cute now. You ought to see how he laughs when I make my bunny's ears wiggle for him." When

he was 2 1/2 she joined her parents in making reports on his progress, saying, "Brother takes off his shoes and stockings at night and he can lace his shoes, but not very good yet."

In sociability and talkativeness and in their personality profiles Walley and Judy resembled each other markedly; in fact, of five people who were given the profiles of Fred, Winnie, Walley, and Judy to pick out the pair that were twins, three paired Walley and Judy. The two others paired Walley and Fred. His advanced speech and his memory and reasoning are indicated in his parents' reports at 2 1/2 years. "When I told Walley, 'Dr. Boyd is coming to see you today,' he said, 'Dr. Boyd put me on a board,'" his mother reported. His father said, "A few weeks ago as I put Walley to bed I said, 'Now I'm going to throw Walley in bed. One for the money, two for the show.' 'Don't, Daddy, don't,' he cried, 'that's dangerous.'" His father said also that when they were riding he would say, "Walley, tell Daddy when he can go," and if the traffic sign read "Stop" Walley would say "Stop, stop, stop," and when it turned to "Go" he would say "Go." His sociability did not wane after he left the city, and at 3 years old he sang "Pop Goes the Weasel" at his father's request and a Sunday school song at his mother's suggestion for S's benefit.

SUMMARY OF THE FAMILIES

How close the writer has approached her difficult goal of presenting clear-cut, unbiased, and non-evaluating pictures of these families the reader can best judge. In so far as she has achieved it, it is unnecessary to point the moral. It is best to let the reader make his own interpretations. Perhaps he will think the families have

been presented in such a uniformly favorable light that the author has blinked their human shortcomings and thus has sacrificed truth and frankness. If the various descriptions read as if given by a friend, it is true that they are. For although the examiners' friendliness may have been deliberate and planned at the outset, it soon grew into genuine human interest, sympathy, and companionship. The author counts these twenty families as among her best friends in the city. Lest she should have fallen so far short of her mark in depicting the families that the reader is unable to generalize from the histories, it may be well to state her general conclusions.

First, the babies received quite different care and treatment from their families. In all cases it included the fundamentals of good infant and child care from the physical standpoint. In psychological care and training the families varied somewhat more widely, but all the babies thrived and apparently were happy. None could be called a "problem child." Furthermore, the extent to which the mother followed the approved current theories in child training bore little relationship to the behavior of the child. Mrs. Wiley was deliberately calm and reasonable, yet Matthew in his early years had storms of temper. Maurice Boatman, whose family was more emotional in his upbringing, was also irritable in the early years. So, too, was Virginia Ruth Whitlock, whose mother was frankly perplexed and sometimes wavered in her training policy. But at 4 all three children were getting their tempers under control; and all were polite, cooperative, and affectionate youngsters. Mrs. Ruger, Mrs. Atwood, and Mrs. Reinke encouraged their little children in hospitality and friendliness, yet the children were modest and shy. Mrs. Maughan effectively restrained her children from excessive inter-

ference in adult activities and conversation, but the children did not become shy or reclusive. Mrs. Thompson and Mrs. Schumann pursued a policy of noninterference as far as possible with their twins, and certainly they attempted to treat the two members of the pair alike; nevertheless the twins were markedly different in disposition.

The conclusions seem obvious. Although the personalities of the babies are undoubtedly influenced by training and treatment, strong characteristics are not ironed out by training. Methods of child training, moreover, of necessity differ from child to child. Equally good results, as far as an observer can judge, are obtained by a variety of methods. Hence it seems that no absolutely wrong and no absolutely right policy can be pointed out to the mother.

Second, each baby exhibited some traits that were in keeping with or similar to those shown by parents or siblings. Strong family resemblances appeared in physical traits and in appearance. Resemblances in personality traits were not less striking. In gait, activity, or speech, in intellectual interests or social behavior, and sometimes in all these, the examiners saw family traits crop out. Family characteristics were the more obvious because the examiners were able to observe more than twenty families at once, but neighbors, friends, and relatives also commented on these resemblances.

Finally, differences in personality were apparent in some babies at birth and in all within the first 3 months. The traits changed somewhat with age and experience, but always in ways that seemed compatible with the original personality "nucleus," to use a biological analogy. All these facts strongly imply that inheritance plays a major rôle in the development of personality.

CHAPTER VII

THE MEANING OF PERSONALITY IN BABYHOOD

The literature. — At present there are no studies of personality at the infant level with which the results of this study can be checked and its theoretical interpretations compared. The reasons are simple. The early biographers, in accordance with the psychology of their day, were primarily concerned with sensory and motor development. Their observations, moreover, were limited to one or two babies. Since they had no standards of reference outside their own families, they had no basis for making judgments as to personality. For in the absence of absolute units of measurement the individual can be measured only in terms of the group.

The more recent infant studies also have shied away from the subject of personality. Watson's emphasis (15) on the use of objective methods has rightly discouraged purely descriptive studies; and studies of personality are still largely descriptive. Watson's successful application of the conditioned reflex technique (16) influenced many students of child behavior to pin their faith on this type of experimentation and to look askance at less physiological methods. Then, too, this work enabled him to generalize concerning the mechanism of emotional development and he made the inference that other traits of personality develop by similar conditioning. His behavior inventory method, which perhaps has more widespread usefulness than the condi-

tioning method, has been extended by Blanton (2) and Jones (10) to include more cases, more items of behavior, and more quantitative treatment of the data; and it has been refined by Weiss and his students Irwin (8), Pratt, Nelson, Sun (13), and Jensen (9) through the introduction of more mechanical recording devices. Both improvements represent gains from the standpoint of the scientific accuracy of the data, but they sacrifice Watson's advantage of repeated contacts with the babies over a long period. Whereas Jones saw the babies only once or twice and the Ohio State group observed the baby during only the neonatal period, Watson apparently kept an experimental eye on "little Albert" for more than a year.

Gesell (5, 6) has had as his major objectives the establishing of age standards of development in infancy and the use of these norms in making comparisons of age with age, prognosticating superiority and retardation, studying the developmental cycle and drawing up curves of mental growth, obtaining physical correlates with mental development, and testing hypotheses concerning the theoretical and practical importance of infancy in the life span. He does not, however, overlook the topic of personality. In his *Mental Growth of the Preschool Child*, published in 1926, he writes:

The synthetic, dynamic aspect of the behaving individual which we call personality also comes within the scope of observation. We cannot, however, measure personality traits with precision. We can scarcely define what we mean by personality, but from the point of view of developmental diagnosis we are obliged to reckon with the make-up and the maturity of personality. . . . Personality and behavior are, of course, inseparable. The behavior episode expresses the momentary sum of the emotive elements and drives of the per-

sonality. These elements and drives are part of the equation but we arrive at them by the route of inference.¹

One of the divisions of the Yale Developmental Schedules is entitled "Personal and Social Behavior." In addition to the test items included under this head, Gesell describes his workers' use of such terms as "alert," "passive," "restless," "aggressive," "timid," "playful," in describing the babies' responses, and he gives an outline for a parental interview intended to obtain data on personality. Some of the questions in the interview call for information as to specific bits of behavior, such as "uses spoon"; "errands"; "adjusts well outside of home (party, picnic, doctors, Sunday school, etc.)"; "accidents"; but many, such as "sociable," "quarrelsome," "cry easily," "tantrums," "timidity," "moody," "suggestible," call for qualitative and quantitative judgments on the part of the mother for which she has insufficient basis of comparison in her own family. In our study, for instance, to the question "Does Virginia Ruth cry easily?" Mrs. Whitlock might truthfully have replied, "She cries quite often, but no more easily than Marcia and Nancy did at her age. I guess she's just about like most babies." Or Mrs. Reinke might have said, "Quentin is a little afraid of strangers, but he's less timid than Daniel was." If an interviewer had been forced to rely on such answers for his information about the personality of these two babies, he would probably have rated them as about average in traits in which each respectively fell at the extremes in a group of twenty. Up to the present, neither Gesell nor any of his students has published studies of personality based on data obtained from these interviews.

¹ Pages 418-19.

In his more recent work *Infancy and Human Growth* Gesell discusses at length the rôle of maturation in the development of personality. In commenting on temperamental differences in a pair of fraternal twins who have been under observation for a period of several months dating from birth, he says:

Even in these early months mother and examiner are agreed that there is a consistent difference between the twins with respect to such matters as placidity, length of crying, vigor of protest, tolerance of physical discomfort, readiness of smiling, social responsiveness, etc. With the same home, the same mother, similar physical health, it is highly probable that these differences in emotivity bespeak an inherent if not inborn difference in temperamental make-up. Experience and education will not so much modify as they will (and should) be modified by this native difference.²

Throughout his discussion he emphasizes the interaction of heredity and environment in the unfolding of personality. He believes that:

Growth potency is broadly and fundamentally determined by inheritance. The basic developmental tempo, trend, and temperament are mainly inherent individual characteristics. Personality in its most pervasive and inclusive sense is mainly a product of the conditions of development. Maturation proceeds from intrinsic potentiality; organization issues from extrinsic and experiential determinants. . . . It is the hereditary ballast which conserves and stabilizes the growth of each individual infant. . . . If it did not exist the infant would be a victim of a flaccid malleability which is sometimes romantically ascribed to him.³

These conclusions, it is obvious from a careful perusal of Gesell's work, are the product of clear, straight-

² Page 372.

³ Pages 377-78.

forward thinking based on careful observation. But since he gives little or none of the quantitative evidence behind his thought it is impossible for the reader to arrive at this conclusion independently through a similar process of reasoning; he must accept the conclusion because of his faith in Gesell's scientific acumen and integrity.

Charlotte Bühler's influence has also been felt in the study of infant personality. In her work at the New York Milk Depot she made a rather thorough survey of social development in the baby. In her twenty-four hour observational studies reported in *The First Year of Life* she recorded emotional and social responses of the babies; and the Babytests worked out by her assistants Dr. Hildegard Hetzer, and Miss Kathe Wolf (3) are divided into four main "lines of action," one of which is social development. Interest in social behavior dominates Bühler's work, but most of her comparisons are made on an age basis for the purpose of showing developmental trends in behavior rather than of delineating the differences between individual babies or the progress of the same baby from age to age.

The work of Sherman (14) on the differentiation of emotional responses in infants is such as to discourage rather than to promote observational studies of personality traits. His demonstration that judges rely on their knowledge of stimuli in interpreting the emotional responses of the newborn calls attention to this pitfall in the interpretation of observational studies. His point that reactions are all but identical in a variety of emotional situations is certainly well taken; the same point has been amply demonstrated as applied to the adult in the work of Landis.

The author fully expects Sherman's work to be cited

in criticism of her statements that in the hospital period Virginia Ruth's yells sounded angry and Quentin's cries timorous and that Carol looked neat, according to notes made at the time. But the fact that accurate judgments of the babies' emotions cannot be made without a knowledge of the stimulus does not prevent the use of such knowledge in making valuable judgments. In practical situations the nurse or mother does not base her treatment on a moving picture account of the baby's discomfort but on her actual observation of the stimulus plus his response. So, too, the examiners in the present study usually knew the stimulus and made a note of it as well as of his response. Thus the interpretations are based on the total situation rather than on the response alone.

In attempting to present data on many personality traits, derived from all possible sources and expressed in comparable units, and in combining these to present a picture of the individual child, only two studies are similar to the present one. Both of these have used as subjects preschool children in attendance at a nursery school, rather than babies under 2 years living in their own homes. In the Merrill-Palmer (17) standard of physical and mental growth the authors have used percentile ranks to make scores in bodily growth, mental attainment, and personality traits comparable from child to child and from trait to trait in the same child. They have studied the constellation of traits in individual children by drawing up biograms for each. They contrast the profiles of two children, of whom one is high in most desirable traits and the other low. Their statistical and graphic treatment is unembellished by descriptive accounts and the reader is left to figure out for himself what kind of child E. M., who is so high in

effective energy, mental effectiveness, emotional control, ease of social adjustment, and skill in work and play, really is.

The second of the studies, an inquiry by Moore (12) into the mental health of the preschool child, employs test situations, ratings by teachers, records of teacher-pupil contacts, and observation in the home.⁴ The five aspects of mental health studied are initiative, creative ability, perseverance, poise, and friendliness. Sigma scores were computed for each child in all five parts of the study. Relationships were then studied by the correlation method. Moore makes little attempt to combine and evaluate the data from the five sources. She presents some data on individual children by the method of pairing two children at opposite poles in one of the traits studied and then comparing them on the basis of their favorite play materials and of their teachers' reactions to them. She describes the behavior of a few children in this or that situation, but she does not use the same child throughout. Hence the reader receives no impression of the personality of any child.

TERMS USED IN THE PRESENT STUDY

The reader who is accustomed to the preponderance of statistics in studies of personality may regard the present work as disappointingly qualitative and anecdotal. If it were possible to obtain a clear impression of a baby's individuality from a casual glance at a profile chart or a percentage tabulation, these detailed descriptions of specific behavior might have been omitted. Because the author believes that it is not possible she has told anecdotes with a purpose and used descriptive

⁴ For a more complete and critical summary of this article see the author's review of it in *Mental Hygiene*, 16: 671-76. 1932.

terms generously in the hope of giving life to the quantitative data.

Again, the student who mistrusts the common words of everyday speech when they are used in a psychological discourse, maintaining that they have no well-defined scientific meanings but are overgrown with the moss of tradition and old associations, may charge the author with verbal inexactitude. She counters by saying that the age-old words kindness, gentleness, friendliness, timidity, shyness, and stubbornness probably have as exact meanings and are as generally applicable as the more recently coined terms negativism, resistant behavior, and introversion-extraversion. For although these new words presumably apply to a pattern of traits that hang together, yet scales worked out by different investigators and intended to measure a particular characteristic sometimes show little agreement when applied to the same group. Until a scale has been validated, the attachment of a name to it may be misleading. And until several psychologists agree as to what these traits are, the terms have no meaning.

Moreover, use of the psychological terms employed in rating scales of adult personality would give the erroneous impression that the data obtained on these babies were measurements of the same things. And the use of dyed-in-the-wool psychological terms would cast over these simple though carefully made observations an aura of psychological interpretation and evaluation that the author does not wish them to have.

SOME PRINCIPLES OF PERSONALITY DEVELOPMENT IN BABYHOOD

On the basis of this long-continued study of a wide variety of traits in twenty babies, the affirmation of a

few principles concerning the manifestation of personality is justified. Some of these principles have been stated as hypotheses by other writers. This work offers proof of the hypotheses by presenting statistical and descriptive characterizations of them as they actually operate.

Early appearance of personality. — Differences in behavior appear very early in life. Indeed, in these subjects they appeared at the first observation and examination, which was given sometime within the first twenty-four hours. There were differences in irritability, in tone and timbre of the cry, in activity, and in tonicity of the muscles, as well as in the quality of reactions to the test situations. The observation of one mother on the prenatal activity of her twins suggests that differences in that trait were present during the fetal period. Since we have accepted the definition of personality as "the sum total of all the individual's behavior" we may therefore enunciate the first law of its development: *Personality differences are apparent at birth.*

Pervasiveness of personality. — According to our definition, personality is manifested in all the responses of the individual. Hence, *ipso facto*, it is all-pervasive in nature. This does not, however, prove that it can be observed scientifically by a variety of methods: by reactions to test situations, incidental behavior, spontaneous speech, and family interplay. When data obtained in these four types of situations were analyzed, they yielded strikingly consistent pictures of the individual babies. An organization and evaluation of the data from all sources undoubtedly gives the most complete and least distorted picture of the whole child. Statistical methods for organizing material of such volume and complexity are as yet lacking; consequently

a descriptive synthesis was resorted to in this study. The second principle is thus arrived at: *Personality, since it pervades all the baby's reactions, may be observed in a variety of situations with consistent results.*

Modification or change. — Throughout this study items of behavior were first measured in terms of frequency of occurrence. These frequencies were plotted and studied graphically. Those that showed a consistent increase with age were assigned developmental or point scores. All the frequency curves showed a definite trend of one kind or another when they were plotted against age, but for those showing downward or alternate upward and downward trends no further scoring was possible. A comparison of the age curves for each baby with that for the median of the group revealed a high degree of correspondence. In every item every baby's curve followed the general developmental trend for the group. There were variations in the age of onset of the several traits, and there were individual exaggerations and diminutions of the group curve; but in no case was the group trend lost sight of or perverted. The fact that all behavior is related to age, not merely that which shows a positive age relation by an upward developmental trend, is strong evidence in favor of Gesell's theory of the profound importance of maturation in personality. The third principle may be stated: *An age trend consistent with that of the group is manifested in every item of the baby's behavior.*

Magnitude of differences. — When a large number of behavior items are measured in terms that are consistent from baby to baby and that are made consistent from trait to trait by converting raw scores into comparable units (percentage of the central tendency), the individual differences are tremendous. In general they

are less marked in items that show an upward trend with age and may therefore be used as a basis for computing developmental scores than in items that decrease with age or that wax and wane and thus are of doubtful developmental significance. This is mathematically logical. Traits in which the babies are growing are shown by all babies in a greater or less degree. The percentage scores are always, therefore, finite numbers; for the most part they range between 50 and 150 per cent. Items that are being dropped, on the other hand, are not dropped simultaneously by all. If the item is shown by more than half the babies in a group, the score for one who does not show it is zero divided by a finite number, which is zero; if the item is shown by less than half the group the score of a baby who manifests it is a finite number divided by zero, which is an indeterminate. It was impossible to obtain from this study a quantitative answer to the important question whether individual differences increase, decrease, or remain constant, because coefficients of variability likewise showed this indeterminate character. We may affirm as a fourth principle that: *Individual differences in behavior traits are large even in babyhood; but they are smaller in items that maintain a consistent upward trend with age than in those that bear inverse or ambiguous relations to age.*

Persistence or permanence. — The several behavior items showed considerable consistency and permanence from age to age. The fact that marked changes, always in the developmental direction, occurred in the frequency of the items in no way contradicts the statement that the individual continued to hold his place in the group. Virginia Ruth and James Dalton both decreased in irritability with age, in accordance with the trend of the group; but the former was consistently the

most irritable and the latter the least irritable of the group. A behavior item, moreover, sometimes waned and lapsed, only to be supplanted by another that apparently was its consistent outgrowth. The baby who manifested the first characteristic in a high degree was high in the new trait also. When Virginia Ruth, Maurice, and Matthew gave up screaming, they became the most strongly addicted of the children to escaping from the examination. Similarly, Quentin's timorous crying gave way to apprehensive watching and that in turn to hiding temporarily behind his mother and being reluctant to play and talk in the examiners' presence. Another law of personality manifestation in babyhood, then, is: *Each baby tends to manifest the various behavior items in approximately the same proportions from age to age. An item that is given up is replaced by another that is consistent with it.*

Pattern of personality. — The several behavior items fall into patterns that differ for different babies. Profile charts drawn up from the percentage scores described above were so unlike in contour that the examiner could identify them without names. The pattern changed somewhat from age to age, but there were always identifying earmarks. Usually one or two items were prominent for each baby. Such items were conspicuous in incidental behavior and in speech records as well as in responses to test situations. When two items were equally prominent, as shown by percentage scores, a judgment as to which was the more important as a motivating principle in the baby's conduct could only be made on the basis of a subjective evaluation of the baby's incidental behavior. The principle of personality constellation is: *Each baby exhibits a characteristic pattern of personality traits that changes little with age.*

Familial correspondence. — In one or more traits every baby showed some resemblance to another member of his family. In several instances a trait appeared in all members of the family, as, for example, social reticence in the Reinkes, gross motor activity in the Beylers, sociability in the Maughans, emotionality in the Boatmans, and intellectual and academic interests in the Atwoods, the Thompsons, and the Whitlocks. In these cases assortative mating had resulted in each child's exhibiting the traits of both parents. In some instances specific training by the mother seemed to have little effect in counteracting a strongly established trait or developing one in which the child was weak. It is possible, of course, that a more subtle and pervasive influence in the environment was encouraging the very trait that the mother was attempting to discourage. The final law of personality development as set forth in this study is: *Babies manifest personality traits that are in harmony with those of their families.*

Theoretical implications. — The evidence marshaled in this study is strongly on the side of innate differences in personality. The early appearance, pervasive nature, and relative stability and permanence of personality traits, their consistent pattern and their harmony with familial traits, all point to a hereditary basis. Developmental change in the frequency with which each trait is manifested supports the maturation hypothesis.

To be sure, these results cannot be interpreted as conclusive evidence that personality potentials are laid down in the genes. But they do indicate that personality has its origin and physiological basis in the structure and organization of the nervous system and of the physico-chemical constitution of the body as a whole. Environment, it goes without saying, has its influence on the physiological organism. Anderson (1) in his

report on *The Child in the Home* for the White House Conference has shown conclusively that differential environment begins to operate at birth and that it is shown in every item of child care, from the substitution of celery for cabbage to the more frequent telling of stories by parents in the upper socio-economic groups. The probability that such environmental differences influence the growing fetus also cannot be denied.

In his recent fanciful satire of a Model T Utopia in which the various social strata are determined before their decanting, Aldous Huxley brings out this point cleverly in describing a students' tour of the London Hatchery and Conditioning Center:

"Reducing the number of revolutions per minute," Mr. Foster explained. "The surrogate goes round slower; therefore passes through the lung at longer intervals; therefore gives the embryo less oxygen. Nothing like oxygen-shortage for keeping an embryo below par." "But why do you want to keep the embryo below par?" asked an ingenuous student. "Ass!" said the director breaking a long silence. "Hasn't it occurred to you that an Epsilon embryo must have an Epsilon environment as well as an Epsilon heredity?"⁵

So in the present study it is impossible to make an evaluation of the relative rôles of heredity and environment in the early manifestation of personality. For obvious reasons the examiners made no attempt to modify behavior, and the mothers' efforts were without scientific control. The co-twin control method seems best for studying the modifiability of personality patterns. Such a study is at present under way at Yale. If it should show that dominant traits are difficult to modify and impossible to efface, the many evidences presented here that personality is inherent may perhaps be interpreted as meaning that it is inherited.

⁵ *Brave New World*, pp. 15-16.

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